

CHAPTER 12

OCCUPATIONAL MEDICAL SURVEILLANCE AND EVALUATION PROGRAM (OMSEP)

SECTION A -GENERAL REQUIREMENTS.	1
1. DESCRIPTIONS.	1
2. ENROLLMENT	1
3. REPORTING REQUIREMENTS	2
4. MEDICAL REMOVAL PROTECTION	4
5. ROLES AND RESPONSIBILITIES.	4
SECTION B - ADMINISTRATIVE PROCEDURES.	9
1. GENERAL.	9
2. EXAMINATIONS TYPES.	9
3. USE OF OMSEP FORMS.	11
4. MEDICAL REMOVAL STANDARDS.	13
5. REPORTING OF EXAMINATION RESULTS.	13
SECTION C -MEDICAL EXAMINATION PROTOCOLS.	26
1. GENERAL.	26
2. ASBESTOS.	26
3. BENZENE.	28
4. CHROMIUM COMPOUNDS.	31
5. HAZARDOUS WASTE.	32
6. LEAD.	34
7. NOISE.	36
8. PESTICIDES.	39
9. RESPIRATOR WEAR.	41
10. RESPIRATORY SENSITIZERS.	43
11. SOLVENTS.	45
12. TUBERCULOSIS.	47
13. UNSPECIFIED.	48

This page left blank

CHAPTER 12. OCCUPATIONAL MEDICAL SURVEILLANCE AND EVALUATION PROGRAM (OMSEP)

Section A - General Requirements.

1. Description.

- a. The work environment and occupational activities inherent to Coast Guard missions can expose personnel to health hazards with the potential for disease or injury. The Occupational Medical Surveillance and Evaluation Program (OMSEP) is designed to identify work related diseases or conditions, through baseline and periodic examinations, at a stage when modifying the exposure or providing medical intervention could potentially arrest disease progression or prevent recurrences. The fundamental purpose of this program is to identify pre-existing health conditions, provide risk specific periodic screenings, and monitor clinical laboratory tests and biologic functions suggestive of work related environmental exposures. All OMSEP enrollees receive periodic physical examinations, in accordance with Occupational Safety and Health Administration (OSHA) requirements, for the duration of their health hazard exposure or end of their employment. Individuals are released from active surveillance at the end of their exposure. In accordance with OSHA regulations, the OMSEP personnel tracking database containing the name, social security number, billet or occupation code, applicable examination protocols, and next physical examination due date remains active for an additional 30 years.
- b. The OMSEP is the physical examination process for the Coast Guard's Occupational Health Program. The guidance for this program is outlined in the Safety and Environmental Health Manual, COMDTINST M5100.47 (series). OMSEP replaces the present version of the physical exam process described in the SEH Manual as the Occupational Medical Monitoring Program (OMMP).

2. Enrollment.

- a. Coast Guard Medical Surveillance Action Level: The medical surveillance action level (MSAL) is the level of worker exposure, determined by workplace sampling, at or above which occupational medical surveillance examinations will be performed. The Coast Guard MSAL will be 50% of the most stringent of the current OSHA permissible exposure limit (PEL), or, the most current American Conference of Governmental Hygienists (ACGIH) Threshold Limit Value (TLV).
- b. Determination of Occupational Exposure.
 - (1) An employee is considered occupationally exposed for OMSEP purposes if a noise exposure or hazardous condition is likely to occur **30 or more days per year**. Documentation of the exposure must meet the following criteria: quantitative work-site sampling measurements indicate hazard levels at or above the MSAL or that the exposure can reasonably be determined, in the absence of quantitative sampling, to exceed the MSAL.
 - (2) Quantitative sampling is the primary and definitive means to characterize workplace health hazards, although personal sampling measurement is preferred to workplace sampling. Coast Guard Safety and Environmental Health Officers

(SEHOs) using guidance contained in the Safety and Environmental Health Manual, COMDTINST M5100.47 (series) will generally perform this function. SEHOs will normally characterize workplaces by frequency of exposure, type of exposure, and risk groups.

- (3) Certain occupations or exposures may require surveillance by federal statutes, DOT regulations, or Safety and Environmental Health Manual, COMDTINST M5100.47 (series) without regard to the 30-day exposure threshold.
- (4) Competent environmental health authority is considered to be the cognizant SEHO but the authority may be delegated to other recognized and approved personnel with the necessary technical training and abilities. Qualitative assessments must be based on expected type, frequency, mode, and duration of hazard exposure, and are considered temporary until validated by quantitative means.

c. Enrollment Criteria: Recommendations for enrollment are based on specific job assignments and the level of worker exposure. This process is initiated at the unit level and must be finalized by the IH or cognizant SEHO, with recommendations from the supervising medical officer (if necessary), before forwarding to Maintenance and Logistics Command (MLC (k)) for inclusion into the OMSEP database (see section 12-A-3-(a)-3). This centralized database will be maintained by MLC (k) and will be accessible to the commands in accordance with privacy act requirements. Personnel will be enrolled in the OMSEP if either of the following criteria are met:

- (1) Personnel identified as occupationally at risk/exposed to hazardous chemicals or physical agents at levels documented or reasonably determined to be above the CG Medical Surveillance Action Level (MSAL) for that hazard,
- (2) Personnel actively engaged for 30 or more days per calendar year in the following occupations will be enrolled in OMSEP, unless an IH investigation determines individuals are not exposed to toxic chemicals or physical hazards: resident inspectors, pollution investigators, marine safety (general), port safety (general), vessel inspectors or marine investigators; and fire fighters.
- (3) Note: New OMSEP enrollees maybe considered for enrollment under the guidelines of the Hazardous Waste protocol, which provides the most through surveillance for those with unknown hazardous risks and no prior history of exposures. However, the unit IH or cognizant SEHO may recommend enrollment using the medical surveillance protocol considered most appropriate.

3. Reporting Requirements.

a. Examination Reports:

- (1) Required forms: OMSEP physical examinations require completion of the most current version of CG Form 5447 (6-01) in addition to forms DD-2808 and DD-2807-1. Other OMSEP specific forms and their uses are presented in Section 12-B (also see Table 12-B-1.) Uses of routine medical record forms are presented in Chapter 4 of this Manual.
- (2) Record keeping: OMSEP personnel records will be handled in the same manner as other medical records (see Chapter 4 of this Manual) with the following exceptions: all x-ray, laboratory test, and related reports of examinations or

procedures done for OMSEP purposes, as well as the medical record cover, shall be clearly labeled "OMSEP." All OMSEP examination reports, including all laboratory data, must be entered into the individual's health record and maintained in accordance with OSHA regulations. The member's medical record custodian will maintain all OMSEP medical records on file for the duration of employment. Upon separation or retirement, all records concurrently labeled "OMSEP" will be maintained, for an additional 30 years, as required by OSHA regulations [29 CFR 1915.1120].

- (3) OMSEP database: MLC (k)'s will maintain an electronic database of all OMSEP enrollees based on enrollment information provided by the local units. The OMSEP personnel tracking database should include, at a minimum, the member's name, social security number (SSN), billet or occupation code, applicable examination protocols, and next physical examination due date. The handling of all data in the OMSEP database will comply with Privacy Act requirements.
 - (4) Substitutions: OMSEP examination forms may **not** be substituted for other examination forms. If another examination is anticipated/required, (i.e. FLIGHT, RELAD) at the same time as the OMSEP examination the appropriate forms for each particular examination should be provided to the examiner so they may be completed at the same time. Duplicate laboratory tests are not required, so long as all specific tests and procedures required for each exam are completed and reported.
 - (5) Exposure data records: Any available exposure data, from workplace surveys, industrial hygiene personal or area monitoring, material safety data sheets, or assigned IH/SEHO other appropriate sources, will be provided by OMSEP coordinator to the examining medical officer as part of the examination packet. These data should be supplied by the local unit, in coordination with the supporting industrial hygienist, prior to the examination. The protocols in Section 12-C, in addition to OSHA regulations, specify what exposure surveillance data must be maintained and made available to the examining medical officer.
- b. Tracking Report: Individual units, in coordination with the cognizant SEHO, are responsible for creating and managing a roster of all OMSEP enrollees and providing the designated medical officer advisor (DMOA)/clinic and MLC(k)'s with an updated report. Once fully implemented medical officers will be able to access this information through the OMSEP database. Updates to the tracking report will be possible by placing the information directly into the database. This will preclude the need for any additional written reports. The report should include all information cited in Section 12-A-3(a)(3) and will form the basis for the OMSEP database.
 - c. Sentinel Occupational Health Event Reporting: The occurrence of a new illness or disease, which is likely associated with an occupational exposure or condition, may be considered a "sentinel event." Such an event may serve as a warning signal that the quality of preventive measures may need to be improved. In order to facilitate timely intervention, the initial diagnosis of any such diseases must be reported IAW Section 7-B of this Manual. A complete list of reportable occupational diseases is found in Figure 7-B-2.

4. Medical Removal Protection. It is the responsibility of the commanding officer to assure a safe and healthy working environment. The finding of a work-related illness or injury, which could be further exacerbated by continued exposure to a workplace hazard or condition, requires immediate evaluation to determine whether the worker must be at least temporarily removed from further exposure. A recommendation to remove the member should be made by the examining medical officer and cognizant SEHO, in coordination with the unit's Commanding Officer. (See section 12-B-4-b).
5. Roles and Responsibilities. The OMSEP is part of a larger and more comprehensive surveillance process requiring the coordinated effort of various district units and local commands working to secure the safety and health of Coast Guard workers. Key personnel have been identified as essential in maintaining a sound occupational health prevention program. Following is a description of their expected roles and responsibilities in this process: NOTE: For the purposes of this Chapter all references to employees, workers, personnel will be assumed to be part of the ONE DOT/CG TEAM concept. Rules, regulations, and directives apply equally to ALL unless otherwise specified.
 - a. Units/Commands: Each unit must appoint an OMSEP coordinator, usually the Safety Coordinator (SC) or the Safety and Occupational Health Coordinator (SOHC), or Independent Duty Corpsman. Even if units are under one servicing clinic, the unit is still required to appoint an OMSEP coordinator and manage their respective database. The OMSEP coordinator is responsible for updating the roster of OMSEP enrollees and maintaining the unit's OMSEP personnel tracking report, ensuring OMSEP examinations are completed in a timely fashion, and ensuring all available exposure data is available to the medical officer at the time of the OMSEP examination.
 - b. MLC (k): MLC (k)'s will ensure that SEHO/IH work-site monitoring and reporting is completed and entered into the appropriate database. Additionally they will provide oversight to the local units ensuring the accuracy and completeness of the OMSEP personnel tracking report. The MLC (k)'s medical officers will provide oversight over the physical examination consultation and referral process. MLC (k)'s will also provide indicated guidance and or training to HS personnel on examination practices and procedures.
 - c. SEHOs: SEHOs will be required to review all requested OMSEP enrollments from the unit OMSEP Coordinators. SEHOs will approve or disapprove requested enrollments through the on-line database. Disapprovals need to be explained to the requesting unit. To substantiate enrollments, SEHOs will be required to conduct and update quantitative and/or qualitative IH assessments of their units' workplace environment. SEHOs will be required to have these written assessments available to the medical officer for review, if requested, to determine the appropriate medical surveillance protocol to use. SEHOs will also be required to provide training and day-to-day consultation with their unit OMSEP Coordinators on database management.
 - d. Commandant (G-WKS): Commandant (G-WKS) will provide planning, development, and expertise on occupational health issues. G-WKS is responsible for policy making, procedural decisions, and ensuring currency of Chapter 12 of the Medical Manual with OSHA standards. The G-WKS occupational medicine medical officer will provide support on physical examination problems and review all diagnosed occupational health related abnormalities encountered by the on-site provider. A yearly report, updating the

status of the member's abnormalities, will be provided to onsite providers. G-WKS is the final authority on decisions of any OMSEP related problems.

e. Medical Officer's Responsibilities:

- (1) Medical Diagnosis coding. The examining medical officer is responsible for explaining and/or following any abnormalities through to a resolution. All diagnoses made must be appropriately coded using ICD-9CM diagnostic coding, or most current version. ICD codes should be noted in parentheses next to the diagnosis on the examination report and be reported to the fifth digit.
- (2) Written assessment or opinion. Whenever a physical exam is performed, the examining medical officer must include the following information **in writing** as part of the record of each examination. This information should be included in the appropriate blocks.
 - (a) The occupationally pertinent results of the medical examination.
 - (b) An opinion about adequacy of the information available to support any diagnosed occupational disease(s), if appropriate.
 - (c) Any recommended limitations to the employee's assigned work.
 - (d) A statement that the employee has been informed about the results of the examination.
 - (e) Any additional written information required by the protocols listed in Section 12-C.

f. Medical Administrators:

- (1) Support. Medical Administrators are responsible for providing administrative assistance on all OMSEP related matters. This support should extend to :
 - (a) All units within the designated AOR.
 - (b) Contracted medical providers and their respective facilities.
 - (c) IDT's.
- (2) OMSEP report/worksite data. Medical Administrators should interact with OMSEP coordinators within their AOR to ensure currency of the roster of enrollees and ensure that work-site information is received in a timely matter. Worksite exposure information, reported history of past exposures and safety data sheets should precede the physical examination to give the medical officer ample time to reach an educated decision.
- (3) Physical Examinations/Medical Records. The Medical Administrator is responsible for the following clinic functions in support of OMSEP:
 - (a) Timely scheduling of physicals.

- (b) Providing qualified technicians to perform the indicated laboratory and radiological procedures.
 - (c) Ensuring proper calibration of equipment, and
 - (d) Compliance with quality assurance standards.
- g. Civilian Employees: Civilian OMSEP enrollees may be entitled to services provided by Coast Guard medical facilities should a determination be made by a medical provider, that an adverse health condition resulted from a work place exposure. Employees are expected to report and explain any illnesses or injuries resulting from exposure sources outside their primary duty station or from other non-occupational settings. Should a determination of an injury or illness, resulting from an exposure at the workplace, be made by a medical provider, civilian appropriated fund employees should contact their servicing civilian Command Staff Advisor (CSA) for assistance in making a claim with the Department of Labor. Non-appropriated fund employees (NAF) should contact their immediate supervisor and/or personnel liaison office. The services provided by the Coast Guard facilities will be only to establish an occupationally-related illness/injury. Further medical care should be provided by the civilian employee's health care provider.
- h. Others: In the event of an emergency situation with heavy exposure (e.g., fire, spill), 24-hour assistance is available from the Agency for Toxic Substances Disease Registry (ATSDR) at the Centers for Disease Control and Prevention. Call 404-498-0210.

Disease Registry (ATSDR) at the Centers for Disease Control and Prevention. Call 404-639-0615-6360.

LIST OF ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
ALT	Alanine aminotransferase
AST	Aspartate amino transferase
BUN	Blood urea nitrogen
CBC	Complete blood count
CNS	Central nervous system
CXR	Chest x-ray
DOT	Department of Transportation
EL	Excursion limit (OSHA mandated maximal “safe” airborne concentration of a substance)
FVC	Forced vital capacity
FEV-1	Forced expiratory volume at one second
ICD-9	International Classification of Diseases, 9 th Revision (coding system for medical diagnoses.)
IH	Industrial hygiene or industrial hygienist
LDH	Lactic dehydrogenase
MCV	Mean corpuscular volume
MCH	Mean corpuscular hemoglobin
MCHC	Mean corpuscular hemoglobin concentration
MLC (k)/(kse)	Maintenance and Logistics Command: (k)-medical; ((kse)-safety & environmental health.
MO	Medical officer (physician, physician’s assistant or nurse practitioner)
MSAL	Medical surveillance action level (Defined in 12-A-3)
OMSEP	Occupational Medical Surveillance and Evaluation Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible exposure limit (The OSHA mandated TWA airborne exposure limit)
PFTs	Pulmonary function tests

LIST OF ABBREVIATIONS (continued)

RBC	red blood cell
SC	Safety Coordinator
SEHO	Safety and Environmental Health Officer
SOHC	Safety and Occupational Health Coordinator
STEL	Short-term exposure limit (The maximal “safe” airborne concentration of a substance)
STEL/C	Short-term exposure limit/ceiling (maximal “safe” airborne concentration of a substance)
STS	Significant threshold shift
TB	Tuberculosis
TLV	Threshold limit value (ACGIH) (The TWA airborne concentration of a substance)
TST	tuberculin skin test (Mantoux)
TWA	time-weighted average
U/A	Urinalysis

Section B - Administrative Procedures.

1. General: All medical examinations and procedures required under the OMSEP shall be performed by or under the supervision of a licensed medical officer and an accredited laboratory shall perform all laboratory tests. Timely completion and monitoring of scheduled examinations is essential in identifying work related health hazards and any specific health effects. All tests required as part of an OMSEP examination should be completed prior to and the results made available to the health care provider at the time of the physical examination. This requirement may be waived if travel or time costs make separate visits impractical. **The provider is required to review, approve (sign), and explain any abnormalities. Any unexplained, examination finding, laboratory abnormality, or test result must be referred to a certified Occupational Health Clinic/provider for further evaluation.**
2. Examination Types.
 - a. Initial/baseline. Baseline examinations are required before placement in a specific job in order to assess whether the worker will be able to do the job safely, to meet any established physical standards, and to obtain baseline measurements for future comparison. Each baseline examination shall consist of all of the elements specified under the appropriate surveillance protocol(s) in Section 12-C. Table 12-B-1 also summarizes the required forms and tests for a baseline examination under each of the surveillance protocols. In the event that the employee is being monitored under more than one protocol, each unique form or test need only be completed once for a particular examination.
 - (1) An initial examination is required for all employees prior to employment. The employee may not be exposed to a potential health hazard until the physical examination is completed. In the event of scheduling delays, this requirement may be waived, if the employee completes ALL the necessary laboratory tests specified under the appropriate surveillance protocol(s). The physical examination must still be completed at the earliest possible date, but not beyond 30 days after the initial date of employment. Longer delays will require temporary removal. Workers who transfer from operational to administrative positions on a frequent basis during the same duty assignment may, with medical officer approval, receive a periodic physical vice a complete baseline examination upon re-entering the hazardous work site.
 - (2) All employees must have a physical examination prior to reassignment to any position with an occupational health hazard exposure as defined in Section 12-A-2-b. This requirement is subject to the stipulation described above in Section 12-B-2-a-1.
 - (3) Any employee actively monitored in the OMSEP, identified, as at risk of exposure to a new health hazard requiring additional protocols, should have an initial examination performed for the new potential exposure(s). The employee may not be placed at risk of exposure until the examination is completed. During such an examination, both the initial examination requirements for the additional protocol and the periodic examination requirements for the original protocol(s) should be met. This requirement is subject to the stipulation described above in Section 12-B-2-a-1.

b. Periodic.

- (1) Once enrolled in the OMSEP, periodic examinations will be performed at the required interval for the duration of the health hazard exposure. Periodic examinations are generally provided at twelve-month intervals, though under some exposure protocols, the period between exams may vary. Each periodic examination shall consist of all of the elements specified under the appropriate surveillance protocol(s). See Section 12-C. and Table 12-B-1. If an employee is being monitored under more than one protocol, each form or test need only be completed once during a particular examination.
- (2) Periodic laboratory monitoring may be required under certain protocols (e.g., lead, pesticides) or special situations. These examinations consist of the specified **laboratory tests only**, and are usually performed in accordance with the specific protocol or as often as deemed necessary by the medical provider.

c. Acute Exposure.

- (1) An acute health hazard exposure examination is required, under some protocols, (e.g., benzene, hazardous waste, noise, solvents), when the applicable short-term exposure limit (STEL) ceiling limit of the substance(s) in question is exceeded. The requirement applies whether or not the employee exhibits any overt symptoms of acute exposure. Specific requirements, if any, for an acute exposure examination are found under the protocols in Section 12-C.
- (2) An acute health hazard exposure examination is recommended if the employee exhibits any adverse effects following an acute exposure to a suspected hazardous substance. If the substance(s) is identified, an examination should be performed following the specific protocol(s) for that substance(s). In the event no specific substance is identified, an examination should be directed according to the “Unspecified” examination protocol and presenting symptoms. The Acute Chemical Exposure Information form (Figure 12-B-1) should be used to collect and organize information when an acute exposure occurs. The information on this form must accompany the employee to his/her examination.
- (3) All HAZMAT response personnel with a documented exposure event, including Coast Guard Strike Team members and firefighters, must complete an Acute Chemical Exposure Information form (Figure 12-B-1) at the end of each HAZMAT response. Special attention must be provided to the type, duration and degree of toxicity of the agent(s) encountered as well as the type of contact (inhalation, skin absorption, ingestion). The type of PPE utilized, type of respirator (if any), and protective clothing worn should also be noted. This information is to be entered in the member’s medical record.

- d. Exit/Separation (Employment/Exposure). Exit exams are designed to assess pertinent aspects of the worker’s health when the worker leaves employment or when exposure to a specific hazard has ceased. Results may be beneficial in assessing the relationship of any future medical problem to an exposure in the workplace. Exit physical examinations must be completed within 30 days of the last day of exposure or employment. The worker may not be re-assigned to a hazardous area once the examination is completed. In the event the worker is exposed to a hazardous substance, after completing the examination, ALL laboratory tests required by the specific protocol for that particular

substance must be repeated (see Table 12-B-1 and Section 12-C). The following conditions also apply:

(1) End of Exposure:

- (a) OMSEP enrollees assigned to a non-hazardous work environment but likely to be assigned to a designated area later in their career.
- (b) Workers who transfer from operational to administrative positions on a frequent basis may, with medical officer approval, receive an update to their periodic physical vice a complete exit (end of exposure) examination. This does not preclude a complete exit/separation examination upon the end of employment.
- (c) Individuals enrolled in the OMSEP, with exposures to known carcinogens or agents with prolonged latency periods for disease development (e.g., asbestos, benzene), will receive an end of exposure exam upon reassignment to non-hazardous area and continue to receive updates to their periodic physicals according to the designated protocol(s). These individuals will be monitored for the duration of their Coast Guard career unless the responsible supervising medical officer or other cognizant medical authority determines such monitoring is not required.

(2) End of Employment:

- (a) OMSEP enrollees permanently separating from Coast Guard employment should receive an end of employment examination.
- (b) The member's permanent home of record and phone number must be secured for notification of any abnormalities.
- (c) A copy of the member's occupational health history, including all potential exposure agents, severity and duration of exposure, and any recommendations on future protocol testing or examinations, must be placed in the member's medical record. A personal copy should also be provided to the member. (see Section 12-B-3-j).

- e. Timing of next examination. The default interval between examinations is one year for all protocols except respirator wear and prior (not current) exposure to asbestos, in which case the default interval is **five years**. However, exams may be recommended as infrequently as biennially for employees monitored solely under the protocols for chromium compounds, hazardous waste, solvents, and unspecified exposures. **A medical officer may recommend for any individual patient a shorter interval between examinations than the default period, if such is medically indicated.** Any recommendation on the timing of the next examination should be included as part of the physician's written assessment.

3. Use of OMSEP Forms.

- a. CG Form 5447 (6-01) (History and Report of OMSEP Examination).

- (1) This form must be completed whenever an OMSEP physical examination is required, except when only annual hearing conservation program is needed. Ensure that the examinee and medical officer identifying information are accurately recorded, including phone numbers.
 - (2) For an initial examination, all history sections on the CG-5447 must be completed. For subsequent examinations, as an alternative to completing all the blocks in history Sections I through IV, the examinee may choose to initial the statement above each section noting that there have been no changes during the interval from the last examination.
- b. OSHA Respirator Medical Evaluation Questionnaire-(mandatory). This questionnaire is to be completed by any worker who is to be issued a respirator or assigned to a task that may require a respirator.
 - c. CG-5140 (Audiometric Biological Calibration Check). This form is to be used to record calibration of the audiometric equipment.
 - d. CG-5552 (Audiology History Questionnaire). This form provides a chronological record of audiologic symptoms and recreational noise exposure. It should be initiated at the time of enrollment in the hearing conservation program and OMSEP surveillance for occupational noise exposure. This form must be updated at each subsequent annual audiogram and reviewed by the responsible medical officer.
 - e. DD Form 2215 (Reference Audiogram). This form is used to record initial audiometric test results.
 - f. DD Form 2216 (Hearing Conservation Data). This form is used to record the results of periodic and follow-up audiometry for individuals routinely exposed to hazardous noise. This form should be preceded by a reference audiogram (DD Form 2215 or other record) already on file in the individual's health record.
 - g. Notification of Summary Results. A sample of this form is provided in Figure 12-B-2. A photocopy or a locally generated form may be used to provide the required notification to the enrollee of the results of his/her OMSEP examination.
 - h. Acute Chemical Exposure Information Form. This form is used to record the results of any unexpected exposures and for verification of notification of the appropriate agencies. A sample of this form is provided in Figure 12-B-1.
 - i. Separation Letter. This letter serves as notification of the member's documented exposure(s) while serving in the US Coast Guard. It provides the nature and levels of exposure(s), if known, and the medical provider's comments and recommendations. A copy is to be placed in the member's record and another provided directly to the member. A sample of the separation letter is provided as Figure 12-B-4.
 - j. Patient Notification. The medical officer is responsible for notifying the patient of any and all abnormalities found or diagnoses made, whether or not they are occupationally related or simply an incidental finding. Notification must be made within 30 days of

completion of the examination and should be documented as a medical record entry (see Figure 12-B-2).

4. Medical Removal Standards

- a. The following abnormal laboratory findings during an OMSEP examination mandate immediate removal of the employee from further workplace exposure to the hazard listed, pending resolution of the abnormality or a determination that the abnormality is not due to a workplace exposure. The medical officer should coordinate all medical removal recommendations with the cognizant SEHO before forwarding to the commanding officer (CO).
 - (1) Benzene (**any** of the following):
 - (a) The hemoglobin/hematocrit falls below the laboratory's normal limit and/or these indices show a persistent downward trend from the individual's pre-exposure norms; provided these findings cannot be explained by other means.
 - (b) The thrombocyte (platelet) count varies more than 20% below the employee's most recent prior values or falls below the laboratory's normal limit.
 - (c) The leukocyte count is below 4,000 per mm³ or there is an abnormal differential count.
 - (2) Lead: A blood lead level at or above 40µg/100 ml of whole blood.
 - (3) Noise: A loss of hearing of ≥ 35 dB in either ear at one or more of the speech frequencies (500, 1,000, 2000, or 3000 Hz), compared with the **current** reference audiogram.
 - (4) Organophosphate pesticides: cholinesterase level at or below 50% of the pre-exposure baseline.
- b. Pregnancy is not a reason for automatic medical removal from the workplace. A decision to remove or restrict a pregnant woman must be based on sound clinical judgment after careful consideration of the workplace environment and the woman's physical capabilities. The woman's pre-natal health care provider (obstetrician) should be apprised early of any/all potential hazards and safety precautions available.

5. Reporting of Examination Results

- a. Coast Guard medical officers will have 30 days from completion of the examination to meet all medical officer responsibilities in Section 12-B-4.
- b. Contractual providers, IDTs, and other detached HSs/units must forward all OMSEP examination questions, problems, and any unresolved matters, with accompanying supporting information, to the assigned CG medical officer for review within 15 days of receipt (includes the examination and any additional testing or consultations).
- c. All records must be forwarded to the record custodian upon compliance with Sections 12-B-6- (a) and 12-B-6 (b) above.

TABLE 12-B-1

REQUIRED FORMS AND TESTS FOR VARIOUS OMSEP EXAMINATIONS AND PROTOCOLS

Exam Type Exposure Protocol	Initial/ Baseline	Periodic	Exit/Separation	Acute Exposure	Biological Monitoring
Asbestos	CG 5447 *OSHA Resp. Quest. DD-2808/ DD-2807-1 Stool guaiac (a)* PFTs “B” reader CXR CBC Multichem panel U/A w/ micro	CG 5447 (update) Stool guaiac (a)* PFTs “B” reader CXR(b)* CBC Multichem panel U/A w/ micro	CG 5447 (update) Stool guaiac (a)* PFTs “B” reader CXR CBC Multichem panel U/A w/ micro	N/A	N/A
Benzene	CG 5447 DD-2808/ DD-2807-1 CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) CBC w/diff Multichem panel U/A w/ micro	CG 5447 (update) Urinary phenol CBC w/ diff Acute Exposure Form	Only under special circumstances . Contact G- WKS-3.
Chromates	CG 5447 DD-2808/ DD-2807-1 CXR PFTs CBC Multichem panel U/A w/ micro	CG 5447 (update) PFTs CBC Multichem panel U/A w/ micro	CG 5447 (update) CXR PFTs CBC Multichem panel U/A w/ micro	N/A	N/A

* OSHA Medical Evaluation Respiratory Questionnaire. Note: DD Forms 2493-1/2493-2 Asbestos Report may be required at medical DOD facilities.

TABLE 12-B-1 (Continued)

Exam Type Exposure Protocol	Initial/ Baseline	Periodic	Exit/Separation	Acute Exposure	Biological Monitoring
Hazardous Waste	CG 5447 DD-2808/ DD2807-1 vision screening CXR PFTs CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) vision screening PFTs CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) vision screening CXR PFTs CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) Acute Exposure Form PFTs CBC w/ diff Multichem panel U/A w/ micro Heavy metal screen (c)*	Only under special circumstan ces. Contact G- WKS-3.

NOTES: *(a) only if patient is age 35+ or otherwise clinically indicated.

*(b) B-reader chest x-rays will be done at periodic examinations according to the following schedule:

<u>Years since first exposure</u>	<u>Age of examinee</u>		
	<u>15 to 35</u>	<u>36 to 45</u>	<u>over 45</u>
0 to 10	Every 5 yrs.	Every 5 yrs.	Every 5 yrs.
Over 10	Every 5 yrs.	Every 2 yrs.	Annually

*(c) Heavy metal screen includes blood lead, cadmium, mercury, and arsenic levels.

TABLE 12-B-1 (Continued)

Exam Type Exposure Protocol	Initial/ Baseline	Periodic	Exit/Separation	Acute Exposure	Biological Monitoring
Lead	CG 5447 DD-2808 DD-2807-1 Blood lead & ZPP CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) Blood lead & ZPP CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) Blood lead & ZPP CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) Acute Exposure Form Blood lead & ZPP CBC w/ diff Multichem panel U/A w/ micro	Blood lead, ZPP
Noise	CG-5552 DD Form 2215 *	CG-5552 (update) DD Form 2216 *	CG-5552 (update) DD Form 2216 *	CG-5447 (update) DD Form 2216 *	N/A
Pesticides	CG 5447 DD-2808 Dd-2807-1 Blood cholin- esterase, twice PFTs CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) Blood cholin- esterase (d)* PFTs CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) Blood cholin- esterase (d)* PFTs CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) Acute Exposure Form Blood cholin- esterase (d)* PFTs	Blood cholinester ase (c)*

Note: DD Forms 2215/2216 remain active and are to be properly recorded and maintained in the member's medical record. DOD facilities continue to use these forms or an electronic equivalent.

CG facilities may continue to use these forms; an equivalent locally reproduced form or electronic version as long as they comply with regulations set forth in Chapter 4 of this Manual.

NOTES: *(d) Blood cholinesterase only required if exposure includes organophosphate and/or carbamate pesticides.

TABLE 12-B-1 (Continued)

Exam Type Exposure Protocol	Initial/ Baseline	Periodic	Exit/Separation	Acute Exposure	Biological Monitoring
Respiratory Sensitizers	CG 5447 DD-2808 DD-2807-1 PFTs CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) PFTs CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) PFTs CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) Acute Exposure Form PFTs	N/A
Solvents	CG 5447 DD-2808 DD-2807-1 CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) CBC w/ diff Multichem panel U/A w/ micro Biological moni-toring (if possible)	CG 5447 (update) CBC w/ diff Multichem panel U/A w/ micro	CG 5447 (update) Acute Exposure Form Specific blood or urine tests for specific solvents.	Specific blood or urine tests for specific solvents. (See Section 12- C-11.d.)
Respirator wear only	CG 5447 ** OSHA Resp Quest	**ORQ (update)	N/A	N/A	N/A

* Respiratory: OSHA Respiratory Questionnaire, this form is provided at the unit level (worksites),
(Reference Section 12-c-9.

TABLE 12-B-1 (Continued)

Exam Type Exposure Protocol	Initial/ Baseline	Periodic	Exit/Separation	Acute Exposure	Biological Monitorin g
Tuberculosis	CG 5447 DD-2808 DD-2807-1 Mantoux skin test (e)*	Mantoux skin test (e)*	Mantoux skin test (e)*	Mantoux skin test (e)*	N/A
Unspecified	CG 5447 DD-2808 DD-2807-1 CBC Multichem panel U/A w/ micro	CG 5447 (update) CBC Multichem panel U/A w/ micro	CG 5447 (update) CBC Multichem panel U/A w/ micro	CG 5447 (update) CBC Multichem panel U/A w/ micro	Only under special circumsta nces. Contact G-WKS- 3.

NOTES: *(e) Personnel with a history of reactive tuberculin skin tests should be monitored for development of symptoms of active TB. A CXR should be done **only** if the skin test is newly reactive.

FIGURE 12-B-1

ACUTE CHEMICAL EXPOSURE INFORMATION

<u>Last Name, First Name, M.I.</u>	<u>Rank/Rate</u>	<u>SSN</u>	
1. Name(s) of chemical(s):	_____	_____	
2. CAS number(s), if known:	_____	_____	
3. Physical form:	<input type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Gas/Vapor <input type="checkbox"/> Aerosol	<input type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Gas/Vapor <input type="checkbox"/> Aerosol	<input type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Gas/Vapor <input type="checkbox"/> Aerosol
4. Chemical form:	<input type="checkbox"/> Acid <input type="checkbox"/> Alkali <input type="checkbox"/> Organic solvent	<input type="checkbox"/> Acid <input type="checkbox"/> Alkali <input type="checkbox"/> Organic solvent	<input type="checkbox"/> Acid <input type="checkbox"/> Alkali <input type="checkbox"/> Organic solvent
5. Modes or routes of exposure:	<input type="checkbox"/> Inhalation <input type="checkbox"/> Ingestion <input type="checkbox"/> Skin	<input type="checkbox"/> Inhalation <input type="checkbox"/> Ingestion <input type="checkbox"/> Skin	<input type="checkbox"/> Inhalation <input type="checkbox"/> Ingestion <input type="checkbox"/> Skin
6. Exposure date, time & duration:	Date/time _____ Duration _____ minutes	Date/time _____ Duration _____ minutes	Date/time _____ Duration _____ minutes
7. Brief description of the incident:			
8. Observed symptoms:			
9. Associated injuries:			
10. Personal Protective Equipment Used:			
Notify District/ISC Safety & Environmental Health Officer, cognizant MLC (kse), and G-WKH-3.			
11 Further guidance received:			
Contact ATSDR emergency response line at 404-498-0210 to obtain further guidance.			
12. ATSDR guidance:	<u>Prescribed tests:</u>	<u>Time limits for specimens</u>	
		<u>Other</u>	

Attach Material Safety Data Sheet (MSDS) and shipping manifest to this form, if available.

(Use reverse for continuation or reporting of additional information.)

OMSEP

Date of Examination:

Patient: _____ SS#: _____

Address:

Phone #

Reference. (a) Medical Manual, COMDTINST M6000.1(series).

- 1) An environmental health evaluation has determined that you may have been exposed to the following health hazards at your workplace:

- 2) Your physical examination was conducted in accordance to reference (a).
There ***ARE*** / ***ARE NOT*** abnormalities in your physical examination and laboratory testing.

NOTED ABNORMAL PHYSICAL FINDINGS OR LABORATORY TESTS	RESULT/INTERPRETATION

- 3) Additional comments on your Occupational Medical Surveillance and Evaluation physical

Name and Title of Health Care Provider:

Signature of Health Care Provider:

Date: _____

HISTORY AND REPORT OF OMSEP EXAMINATION

Page 1

FIGURE 12-B-3 (cont'd)

Section III. Social History (continued)											
28. Other smoking history:					29. Alcohol use history:						
Y	N				Y	N					
		Do you smoke cigars or a pipe now?					Do you drink any alcoholic beverages (beer, wine, liquor)?				
		If NO: Did you ever smoke cigars or a pipe?					If YES: How many bottles/cans of beer per week?				
		If you smoked before, what year did you stop?					How many glasses of wine per week?				
		How many years had you smoked?					How many ounces of liquor per week?				
		How many cigars or pouches per week?					30. Do you use any other recreational drugs? If so, list below.				
		If YES: How many years have you smoked?									
		How many cigars or pouches per week?									
IV. Personal Health History (patient must complete) _____ Initial here if the answers to the following questions are all "NO" and there have been no changes since your last exam, then go to item 32. 31. Have you <i>recently</i> had or do you <i>now have</i> any of the following symptoms or complaints, yes or no?											
Y	N		Y	N		Y	N		Y	N	
		Unexplained weight loss			Difficulty sleeping			Chest pain or angina			Birth defects in your children
		Fever or chills			Red or irritated eyes			Palpitations or irregular heart			Pain or blood with urination
		Skin rashes or ulcers			Visual disturbances or changes			Other heart trouble			Muscle pain or weakness
		Lumps you can feel			Sinus trouble (pain, discharge)			Abdominal pain			Joint pain or swelling
		Severe or recurrent headaches			Nosebleeds			Gastritis or peptic ulcers			Limitations of motion
		Dizziness or vertigo			Sore throat, trouble swallowing			Jaundice or yellowing skin			Back pain
		Fainting or passing out			Pain or swelling in neck			Nausea or vomiting			Numbness, tingling in extremities
		Seizures or epilepsy			Frequent coughing			Constipation			Anemia ("low blood")
		Trouble concentrating			Coughing phlegm or blood			Diarrhea or runny stools			Easy bruising or bleeding
		Mood changes, irritability			Wheezing or asthma			Bloody or tarry stools			HIV/AIDS
		Tiredness or fatigue			Shortness of breath			Infertility or miscarriages			Cancer or leukemia
32. In general, would you say your health is (check one): Excellent <input type="checkbox"/> Very Good <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/>											
33. List any medications you are currently using, or state "none".											
34. List any allergies you know you have, or state "none".											
35. Additional space for comments and explanations of your "yes" answers:											
All information provided will be handled in accordance with Privacy Act requirements, and will not be otherwise disclosed.											
I hereby certify that I have reviewed the foregoing information supplied by me and that it is true and complete to the best of my knowledge.						Signature of patient				Date	

Occupational Exposure History

Page 3

FIGURE 12-B-3 (cont'd)

MEDICAL OFFICER'S SECTION

Part 2

[illegible]

FIGURE 12-B-4

OMSEP

SEPARATION LETTER

NAME: _____ SSN: _____
DATE: _____

You have been enrolled in the Coast Guard's OCCUPATIONAL MEDICAL SURVEILLANCE AND EVALUATION PROGRAM (OMSEP). During the past _____ years you received periodic physical examinations based on Occupational Health Safety Organization (OSHA) protocols for the following known potentially hazardous exposures:

Your occupational (work-related) history also indicates suspected exposure to the following agents:

At the time of your EXIT/SEPARATION medical examination you were found to be in good health with no evidence occupational induced disease. However, it is recommended that you continue to receive medical examinations on a periodic basis based on age indicated guidelines. In addition, the periodicity of the examination should be modified to allow for adequate detection and prompt intervention on disease processes resulting from the latent effects of occupational hazardous substances. Your medical provider should follow OSHA mandated recommendations, for the aforementioned hazardous substances, in determining the frequency and level of care you require. NOTE: if a member is found to have an occupational related disease process at the time of separation, indicated medical referral measures will be instituted.

Any questions relating to this member's occupational health history can be obtained by contacting the US Coast Guard's Office of Safety and Environmental Health at # 202-267-1883.

Medical officer signature

- This letter should printed on official Coast Guard Letterhead for inclusion in members official health record.

Section C - Medical Examination Protocols.

1. General.

- a. The following protocols follow the same format. Each contains a brief description of the hazard and its possible effects; the conditions required for an individual to be surveyed under that protocol; information which must be provided to the examining medical officer; specific requirements of the history and physical, including laboratory tests and special procedures; and any additional written requirements on the part of the examining medical officer. The protocols are summarized in Figures 12-C-1 through 12-C-12. Copies of these figures may be locally reproduced. The unit OMSEP coordinator should complete the information in the first eight blocks at the very top, and the appropriate protocol summary figure(s) should be provided to the examining medical officer with the examination packet.
- b. Multiple protocols for a single individual. In the event that an individual is being monitored on more than one protocol (e.g., asbestos and noise), the final examination packet must include each of the required items for each of the protocols. However, each required form or test need only be completed once.
- c. Past exposure. Personnel who have a documented history of workplace exposure to known carcinogens, but who are not currently exposed, shall be offered an annual medical examination, according to this protocol until end of employment. Undergoing this examination is strictly voluntary.

2. Asbestos (Figure 12-C-1).

- a. Exposure effects. Asbestos exposure can cause asbestosis, bronchogenic carcinomas, mesothelioma, and gastric carcinoma. It may also be associated with multiple myeloma and renal carcinoma. Disease risk is dose dependent. There is a synergistic effect between asbestos exposure and cigarette smoking, so that the risk of lung cancer is roughly ten times greater in asbestos-exposed workers who smoke as opposed to nonsmoking asbestos-exposed workers. The primary route of exposure is inhalation, though ingestion of fibers may also occur.
- b. Required surveillance.
 - (1) All personnel with current employment exposure to airborne asbestos, who meet the MSAL criteria in Section 12-C-2- (4) below, shall undergo medical surveillance. These personnel shall be included in the OMSEP and be examined according to the protocol in Section 12-C-2.d below. Medical examinations shall be provided upon enrollment and at least annually thereafter, throughout the duration of exposure or until end of employment, whichever comes first. Under current Coast Guard policies for management of asbestos, very few non-shipyard workers should be currently exposed at or above the PEL or EL.
 - (2) Construction worker standard. The OSHA standard for asbestos applies to, but is not limited to, workers who demolish, remove, alter, repair, maintain, install, clean up, transport, dispose of, or store asbestos containing materials.
 - (3) The current MSALs are based on the OSHA exposure standard for shipyards [29 CFR 1915.1001].

- (a) For other than shipyard and construction workers, medical surveillance is required for those employees who are or will be exposed at or above the PEL as an 8 hour time-weighted average, or above the EL averaged over 30 minutes, regardless of the number of days of exposure.
 - (b) For shipyard and construction workers, medical surveillance is required for those workers:
 - 1 Who remove any asbestos-containing materials, or who perform repair and maintenance operations in which asbestos-containing materials are likely to be disturbed, is such work is performed for a combined total of 30 or more days per year, regardless of fiber levels;
 - 2 Who are exposed at or above the PEL or EL for a combined total of 30 or more days per year; or
 - 3 Who are required to wear positive pressure respirators while performing asbestos-related work, regardless of the number of days respirators are worn.
- c. Information to medical officer. The following information must be provided to the examining medical officer, by the OMSEP coordinator, prior to the examination taking place:
 - (1) A copy of the OSHA asbestos standards [29 CFR 1915.1001], with appendices D and E.
 - (2) A description of the affected employee's duties as they relate to the employee's exposure.
 - (3) The employee's representative exposure level or anticipated exposure level.
 - (4) A description of any personal protective or respiratory equipment used or to be used.
- d. Examination protocol.
 - (1) Each initial, periodic, and exit examination shall include, as a minimum:
 - (a) A medical and work history. Emphasis should be placed on the member's history of tobacco use (smoking), and associated symptoms of dyspnea on exertion, recurrent epigastric discomfort, pleuritic chest pains or unexplained cough.
 - (b) Completion of the OSHA Respiratory Medical Evaluation Questionnaire Appendix C to RP Standard 29CFR 1910.134. Note: additional information on asbestos reporting guidelines may be found at www.osha.gov.
 - (c) A complete physical examination of all systems, with emphasis on the respiratory system, the cardiovascular system, and digestive tract.
 - (d) A stool guaiac test, if the patient is age 35 or over.

- (e) PFTs, including FVC and FEV1.
- (f) Routine screening labs, including a CBC, multichemistry panel (including glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, and alkaline phosphatase), and U/A with microscopic.
- (g) A postero-anterior (PA) CXR, in accordance with the schedule and interpretation requirements in Section 12-C-2-d(2) below;
- (h) Any other tests or procedures deemed appropriate by the examining physician, including specialty consultations.

(2) Chest x-ray requirements:

- (a) A PA CXR shall be performed at the initial examination and then according to the following schedule:

<u>Years since</u> <u>First exposure</u>	<u>Age of examinee</u>		
	<u>15 to 35</u>	<u>36 to 45</u>	<u>over 45</u>
0 to <u>10</u>	Every 5 yrs.	Every 5 yrs.	Every 5 yrs.
Over 10	Every 5 yrs.	Every 2 yrs.	Annually

- (b) A PA chest-x-ray shall be performed at the exit examination.
- (c) All CXRs shall be interpreted and classified in accordance with a professionally accepted classification system and recorded following the format of the CDC/NIOSH (M) 2.8 form. A B-reader or a board eligible/certified radiologist using the ILO-U/C International Classification of Radiographs for Pneumoconiosis references shall only do the interpretation.
- (d) Assistance in obtaining the location of the nearest B-reader is available from MLC (k).

e. Specific written requirements. In addition to the general requirements specified in Section 12-B-4-b, the examining physician must address the following in writing:

- (1) Any detected medical conditions placing the employee at increased risk of health impairment from further asbestos exposure.
- (2) The employee's ability to use respiratory and other personal protective equipment (see Section 12-C-9), and any limitations thereof.
- (3) Employee notification of the results of the examination and any medical conditions resulting from asbestos exposure that might require follow-up.
- (4) Employee notification of the increased risk of lung cancer attributable to the synergistic effects of asbestos and smoking.

3. Benzene (Figure 12-C-2).

- a. Exposure effects. Benzene exposure can cause central nervous system depression, leukemia, aplastic anemia, and dermatitis. The primary route of exposure is inhalation

of vapors, though skin absorption may also occur. Within the Coast Guard, most benzene exposure occurs among marine inspectors and oil spill responders.

b. Required surveillance.

- (1) The Coast Guard MSALs are based on the OSHA action level and PEL standards. Enrollment in the OMSEP is required for all personnel:
 - (a) who are or may be exposed to benzene at or above the current average exposure action level 30 or more days per year,
 - (b) who are or may be exposed to benzene at or above the current short-term exposure action level 10 or more days per year, or
 - (c) who served as resident inspectors, pollution investigators, marine safety officers, port safety officers, vessel inspectors, or marine investigators prior to 1990. These personnel are considered to have been exposed at/or above the MSAL unless otherwise documented.
- (2) In addition to routine surveillance requirements above, if an employee is exposed to benzene in an emergency (fire, spill) situation, a urine specimen will be collected as soon as possible thereafter, but not later than 24 hrs. after the exposure, and an acute exposure examination will be performed within 72 hrs. of the exposure. Such an examination must contain a urinary phenol test on the collected urine specimen.

c. Information to medical officer. The following information must be provided to the examining physician, by the OMSEP coordinator, prior to the examination taking place:

- (1) A description of the affected employee's duties as they relate to the employee's exposure.
- (2) The employee's representative exposure level or anticipated exposure level.
- (3) A description of any personal protective or respiratory equipment used or to be used.

d. Examination protocols.

- (1) Each routine (non-acute exposure) initial, periodic, and exit examination shall include, as a minimum:
 - (a) A detailed history which includes:
 - 1 past occupational exposure to benzene or any other hematological toxins, at work or at home;
 - 2 a family history of blood dyscrasias, including hematological neoplasms;
 - 3 a personal history of blood dyscrasias, including genetic hemoglobin abnormalities, bleeding abnormalities, abnormal function of formed blood elements; and of renal or liver dysfunction;

- 4 history of exposure to ionizing radiation;
 - 5 smoking history, alcohol usage history, and all medicinal drugs routinely taken;
 - 6 any current history of headache, difficulty concentrating, decreased attention span, short-term memory loss, mood lability, fatigue, dry skin, abnormal bleeding, anemia, or weight loss.
 - (b) a complete physical examination, (Ensure the patient is examined for mental status changes, dermatitis, and pallor.);
 - (c) a CBC and differential, with platelet count and RBC indices (MCV, MCH, MCHC);
 - (d) a multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, and alkaline phosphatase) and U/A with microscopic;
 - (e) any other tests or procedures deemed appropriate by the examining physician.
- (2) Each acute exposure examination shall include, as a minimum:
 - (a) a brief summary of the nature of the exposure and investigation of any symptoms or complaints;
 - (b) a total urinary phenol level (mg/L) or a urinary phenol adjusted for urinary creatinine (mg/g creatinine), plus a CBC and differential, with platelet count, and RBC indices (MCV, MCH, MCHC). Plasma folate and B12 levels to rule out megaloblastic anemia if the MCV is elevated.
 - (c) any other test or procedure deemed appropriate by the examining physician may be performed, if available. Coast Guard medical providers are encouraged to contact G-WKS for advise and consultation in selecting the most applicable test or procedure. Alternatively, medical providers may contact any certified Occupational Health clinic provider, available in the local community.
 - (d) If either the total urinary phenol level is below 50 mg phenol/L of urine, or the urinary phenol adjusted for urinary creatinine is less than 250 mg/g creatinine, and the CBC is normal, no further testing is required. Otherwise, contact Commandant (G-WKS-3) for further requirements.
- e. Specific written requirements. In addition to the general requirements specified in Section 12-B-4-b, the following must be addressed in writing by the examining medical officer:
 - (1) Any detected medical conditions, which would place the employee's health at greater than normal risk of material impairment from exposure to benzene.

- (2) The medical officer's recommended limitations upon the employee's exposure to benzene or upon the employee's use of protective clothing or equipment and respirators.
- (3) A statement that the employee has been informed by the medical officer of the results of the examination and any medical conditions resulting from benzene exposure which require further explanation or treatment.

4. Chromium Compounds (Figure 12-C-3).

- a. Exposure effects. Hexavalent chromium compounds are known human carcinogens. They may also cause dermatitis, skin ulceration, occupational asthma, and nasal septum perforation. The primary routes of exposure are percutaneous absorption and inhalation. Chromates may be found in certain metal alloys, paints, and masonry cements. Within the Coast Guard, most chromate exposure is from the use of chromium containing paints.
- b. Required surveillance. The Coast Guard MSALs are based on the ACGIH threshold limit values (TLVs). Medical surveillance is required for all personnel who are or may be exposed to chromium IV compounds at or above the current exposure action level 30 or more days per year.
- c. Information to medical officer. The following information must be provided by the OMSEP coordinator to the examining physician prior to the examination taking place:
 - (1) A description of the affected employee's duties as they relate to the employee's exposure.
 - (2) The employee's representative exposure level or anticipated exposure level.
 - (3) A description of any personal protective or respiratory equipment used or to be used.
- d. Examination protocols. Each routine initial, annual (periodic), and exit examination must include:
 - (1) A detailed history, which includes:
 - (a) Past and current occupational exposures to chromate, asbestos, or any other pulmonary carcinogens at work or at home;
 - (b) Smoking history and alcohol usage history;
 - (c) Any past or current history of dry skin, skin ulcers—usually painless, nosebleeds, asthma, shortness of breath, wheezing, or cough;
 - (2) A directed physical examination, with attention to the skin, mucous membranes, and respiratory tract, both upper and lower (ensure the patient is examined for erosion of the nasal mucosa and septum, respiratory rhonchi, dermatitis, and cutaneous ulcers);
 - (3) A CBC, multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, and alkaline phosphatase), and a U/A with microscopic;

- (4) PFTs (including FVC & FEV₁);
 - (5) A PA CXR **only** for an initial/baseline or exit examination, unless there is a current clinical indication (cough, shortness of breath, wheezing, etc.);
 - (6) Any other tests or procedures deemed appropriate by the examining physician.
- e. Specific written requirements. Other than the general requirements specified in Section 12-B-4-b, the physician should address:
- (1) The periodicity of the next routine medical surveillance examination.
Examinations will be provided annually unless the physician recommends a longer interval.
 - (2) The employee's ability to use respiratory and other personal protective equipment (see Section 12-C-9), and any limitations thereof.
5. Hazardous Waste (Figure 12-C-4).
- a. Exposure effects. The OSHA medical surveillance protocol for hazardous waste operations and emergency response (HAZWOPER)[29 CFR 1910.120] involves medical surveillance for potential exposure to numerous metals and chemicals, usually in uncontrolled—spill, fire, disposal—situations. Therefore, there are no specific exposure effects to describe.
- b. Required surveillance.
- (1) Routine medical surveillance is required for employees involved in hazardous waste operations when any of the following conditions are met:
 - (a) Exposure or potential exposure to hazardous substances or health hazards at or above the MSAL for that substance (as defined in Section 12-A-4), without regard to the use of respirators or personal protective equipment, for 30 or more days per year.
 - (b) All hazardous waste operation employees who wear a respirator for 30 or more days per year or as required under Section 12-C-9.
 - (c) All employees who are injured, become ill, or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation.
 - (d) Members of HAZMAT response teams, including all Coast Guard Strike Team members and firefighters.
 - (2) In addition to routine surveillance requirements above, if an employee is exposed to a hazardous substance above the Coast Guard MSAL in an emergency (fire, spill) situation, a urine specimen will be collected as soon as possible thereafter, but not later than 24 hrs after the exposure, and an acute exposure examination will be performed within 72 hrs of the exposure.
- c. Information to medical officer. The examining medical officer shall be provided, by the OMSEP coordinator, one copy of the OSHA HAZWOPER standard [29 CFR 1910.120] and its appendices, plus the following specific information:

- (1) A description of the employee's duties as they relate to the employee's exposures.
- (2) The employee's exposure levels or anticipated exposure levels.
- (3) A description of any personal protective equipment used or to be used, including any respirators.
- (4) Information from previous medical examinations of the employee which is not readily available to the examining physician.

d. Examination protocols.

- (1) Each routine (non-acute exposure) initial, periodic, and exit examination shall include, as a minimum:
 - (a) A medical and occupational history which includes:
 - 1 past and current occupational exposure to hazardous chemicals, metals, dusts, fumes, and heat stress;
 - 2 any history of heat illness, allergies, sensitivities, or physical abnormalities;
 - 3 current medications, and immunization history;
 - 4 smoking history, and alcohol usage history;
 - 5 a complete review of organ systems.
 - (b) A complete physical examination with attention to the skin, eyes, nose, throat, and respiratory, cardiovascular, genitourinary, and neurologic systems;
 - (c) A CBC and differential, with platelet count, and RBC indices (MCV, MCH, MCHC);
 - (d) A multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, and alkaline phosphatase) and U/A with microscopic;
 - (e) PFTs (including FVC & FEV1);
 - (f) Vision screening;
 - (g) A PA CXR only for an initial/baseline or exit examination, unless there is a current clinical indication (cough, shortness of breath, wheezing, etc.);
 - (h) Any other tests or procedures deemed appropriate by the examining physician. (Consider a stool guaiac and/or electrocardiogram, if indicated by age or physical findings).
- (2) Each acute exposure examination shall include, as a minimum:

- (a) A brief summary of the nature of the exposure and investigation of any symptoms or complaints;
 - (b) A CBC and differential, with platelet count, and RBC indices (MCV, MCH, MCHC), a multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, and alkaline phosphatase) and a U/A with microscopic;
 - (c) PFTs (including FVC & FEV1);
 - (d) Appropriate biological monitoring tests (e.g., blood metal screen) depending on the exposure in question. Contact Commandant (G-WKS-3) for further information and requirements.
- e. Specific written requirements. Other than the general requirements specified in Section 12-B-4-b, the physician should address:
- (1) Whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from work in hazardous waste operations or emergency response, or from respirator use.
 - (2) The employee's ability to use respiratory and other personal protective equipment (see Section 12-C-9), and any limitations thereof.
 - (3) The periodicity of the next routine medical surveillance examination.
Examinations will be provided annually unless the physician recommends a longer interval.

6. Lead (Figure 12-C-5).

- a. Exposure effects. In adults, excessive lead exposure can cause hypertension, anemia, peripheral neuropathy, encephalopathy, spontaneous abortions in women, and decreased fertility in men. The primary route of exposure in adults is inhalation of lead containing dust or fumes. Most exposure in the Coast Guard occurs during removal of previously applied lead-based paint coatings, or during environmental recovery of previously discarded lead-acid batteries. Some welders may be exposed to lead fumes.
- b. Required surveillance. The Coast Guard MSAL is based on the OSHA PEL standard for shipyards [29 CFR 1915.1025]. Enrollment in the OMSEP is required for all personnel who are or may be exposed to lead at or above the current exposure action level for 30 or more days per year.
- c. Information to medical officer. The OMSEP coordinator shall provide the medical officer with one copy of the OSHA lead standard [29 CFR 1915.1025] and its appendices, plus the following specific information:
 - (1) A description of the employee's duties as they relate to the employee's exposure.
 - (2) The employee's exposure level or anticipated exposure levels to lead and to any other toxic substance (if applicable).
 - (3) A description of any personal protective equipment used or to be used, including any respirators (if known).

- (4) Prior blood lead determinations.
 - (5) Information from previous medical examinations of the employee which is not readily available to the examining physician. This includes all available prior written medical opinions concerning the employee.
- d. Examination protocols.
- (1) Biological monitoring or “blood lead only” examinations must be provided to each employee exposed at or above the OSHA action level (currently TWA of 30 mg/m³ air) **every six months**. Otherwise, only annual examinations must be performed, unless an employee’s blood lead level is found to be elevated at or above 40 mg/100 ml of whole blood.
 - (2) Each routine initial, periodic, exit, and acute exposure examination shall include, as a minimum:
 - (a) A detailed work history and a medical history, with particular attention to:
 - 1 past lead exposure (occupational and non-occupational);
 - 2 personal habits (smoking, handwashing after work and before eating);
 - 3 past and current gastrointestinal, hematological, renal, cardiovascular, reproductive, and neurological problems.
 - (b) A complete physical examination with particular attention to:
 - 1 ocular fundi, teeth, gums, hematological, gastrointestinal, renal, cardiovascular, and neurological systems;
 - 2 blood pressure (must be recorded);
 - 3 pulmonary status should be evaluated if respiratory protection is to be used. (See Section 12-C-9).
 - (c) The following routine laboratory tests:
 - 1 a CBC and differential, with platelet count, and RBC indices (MCV, MCH, MCHC), plus examination of peripheral smear morphology;
 - 2 blood lead level and zinc protoporphyrin (must be performed by a laboratory licensed by the CDC for proficiency in blood lead testing);
 - 3 a multi-chemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, and alkaline phosphatase);
 - 4 a U/A with microscopic examination; and,
 - 5 PFTs (including FVC & FEV 1).

- (d) Any other tests or procedures deemed appropriate by the examining physician (pregnancy testing, laboratory examination of male fertility).
- e. Specific written requirements. In addition to the general requirements specified in Section 12-B-4-b, the physician should address:
 - (1) Any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from exposure from lead, or from respirator use.
 - (2) The employee's ability to use respiratory and other personal protective equipment (see Section 12-C-9), and any limitations thereof.
 - (3) The results of the blood lead determinations.
- 7. Noise (Figure 12-C-6).
 - a. Exposure effects. The primary effect of excessive noise is to cause loss of hearing. This hearing loss may be described by three "p-words:" painless, progressive, and permanent. Cumulative overexposures to hazardous noise levels cause millions of people to lose hearing during their working lives.
 - b. Required surveillance. The Coast Guard MSAL is based on DOD Instruction 6055.12, DOD Hearing Conservation Program, as well as OSHA guidance [29 CFR 1910.95]. Enrollment in the OMSEP is required for all personnel who are or may be exposed to hazardous noise at or above the current exposure action level for 30 or more days per year. However, personnel who infrequently or incidentally enter designated "hazardous noise areas" need not participate in the audiometric testing program.
 - (1) Enrollment is required in accordance with the following criteria:
 - (a) When the member is exposed to continuous and intermittent noise that has an 8-hour time-weighted average (TWA) noise level of >85 decibels A-weighted (dBA), or is exposed to impulse noise sound pressure levels (SPLs) of 140 decibels (dB) peak, or greater, or
 - (b) When a threshold shift of > 35 dB is noted in the speech frequencies.
 - (2) Reference (baseline) audiograms:
 - (a) All personnel shall receive a reference audiogram prior to any Coast Guard occupational noise exposure or before they are assigned to duties in "hazardous noise areas".
 - (b) Every effort should be made to schedule the reference audiogram on civilian workers in order to avoid conflicts with assigned duties; military personnel shall receive their reference audiogram at initial entry training.
 - (c) Testing to establish a reference audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors that attenuate workplace noise below a TWA of 85 dBA, may be used to meet this requirement, in place of exclusion from the noisy workplace.

- (3) Exit audiograms: shall be conducted on all employees, previously enrolled in the “hearing conservation program”, if it is determined the employee no longer works in a designated “hazardous noise area,” unless that employee is moving to another Coast Guard position that also involves work in such areas. However, if the employee’s audiogram shows hearing losses (compared to the reference audiogram) of greater than 35 dB in the speech frequencies (500 - 3000 Hz) the employee must continue to receive annual audiograms until end of employment.
- c. Information to medical officer. The OMSEP coordinator must provide the examining medical officer with a description of the employee’s duties as they relate to the employee’s exposure, the dB level of the hazardous work area and a description of any personal protective equipment used or to be used (e.g., earplugs or earmuffs).
- d. Examination protocols.
 - (1) Each routine (non-acute exposure) initial, periodic, and exit examination shall include completion or updating of an Audiology History Questionnaire (CG 5552) and audiometric testing (audiogram). All audiometric testing shall:
 - (a) Be performed by a licensed or certified audiologist, otolaryngologist, or other physician; or by a technician who is certified by the Council for Accreditation in Occupational Hearing Conservation or who has completed CG HS “A” school. A technician who performs audiometric tests shall be responsible to an audiologist, otolaryngologist, or other physician. Standard instructions shall be given to individuals before testing.
 - (b) Be conducted in a testing environment with background octave band SPLs not greater than 27 dB at 500 Hz, 29 dB at 1000 Hz, 34 dB at 200 Hz, 39 dB at 4000 Hz, and 41 dB at 8000 Hz. The test environment shall be surveyed annually to ensure these levels are not exceeded.
 - (c) Include pure tone, air conduction, and hearing threshold examinations of each ear at the test frequencies of 500, 1000, 2000, 3000, 4000, and 6000 Hz.
 - (d) Be performed on audiometers conforming to the most current calibration specifications of the American National Standards Institute (ANSI). Audiometers currently in operation must receive annual electroacoustic calibration to maintain certification.
 - (e) Occur on audiometers that have received a functional operations check before each day’s use for specifications in the OSHA Occupational Noise Exposure standard [29 CFR 1910.95]
 - (f) Be recorded on DD Form 2215 (Reference Audiogram), or DD Form 2216 (Hearing Conservation Data), or equivalent locally reproduced versions as appropriate.
 - (2) Significant Threshold Shift (STS). Transcribe the reference audiogram test results into the “Reference Audiogram” spaces on the DD Form 2216, Hearing

Conservation Data (or equivalent). The reference levels are subtracted from the current levels at 2000, 3000, and 4000 Hz. The differences in hearing levels calculated at 2000, 3000, and 4000 Hz are added together and divided by three, for each ear. STS exists if the resulting average hearing loss in either ear is greater than or equal to ± 10 dB [29 CFR 1910.95]. Additionally, any change of ± 15 dB at 2000, 3000, or 4000 Hz in either ear shall constitute an STS. Results shall be recorded on DD Form 2216. Aging (presbycusis) can contribute to the change in hearing level. When determining whether an STS has occurred, note the following: The TRACOR microprocessor audiometer automatically corrects for aging. The National Institute for Occupational Safety and Health (NIOSH) age corrections shall **not** be applied when determining STS if a microprocessor audiometer is used for the test.

- (3) A follow-up audiogram shall be conducted when an individual's audiogram shows an STS, in either ear, relative to the current reference audiogram. Medical evaluation is required to validate the existence of a permanent noise-induced threshold shift and/or to determine if further medical referral is required. An audiologist, otolaryngologist, or other knowledgeable physician shall perform the evaluation and determine if the noise-induced STS is/is not work-related or has/has not been aggravated by occupational noise exposure.
- (4) When a negative STS (improvement in hearing threshold from the reference audiogram) is noted on the periodic audiogram, one 14-hour noise-free follow-up test is required. That may be administered on the same day as the periodic test. The results of the follow-up test may be used to create a re-established reference audiogram.
- (5) When a positive STS (decrease in hearing threshold from the reference audiogram) is noted on the periodic audiogram, two consecutive 14-hour noise-free follow-up tests **must** be administered to confirm if the decrease in hearing is permanent. The follow-up exams may not be performed on the same day as the periodic audiogram. The results of the second follow-up test may be used to reestablish a reference audiogram, **if the required medical evaluation validates the existence of a permanent noise induced threshold shift (see Section 12-3-d.(3) above)**. If the results of the first follow-up test do not indicate an STS, a second follow-up test is not required.
- (6) A new reference audiogram shall replace the original reference audiogram when the medical evaluation confirms that the STS noted during the annual and follow-up audiograms is permanent. The original reference audiogram shall be retained in the patient's medical record.
- (7) Acute exposure examinations (formerly called the Detailed Surveillance Program). These examinations are designed to observe any dynamic hearing loss, to identify those who demonstrate unusual noise sensitivity, or to monitor personnel acutely exposed to unprotected high levels of noise (impulse >140dba).
 - (a) The initial acute exposure examination shall consist of all elements described in Sections 12-C-7.d. (1)-(6), above. Additional follow-up audiograms will be performed at 30 and 90 days, or at more frequent intervals at the discretion of the medical officer.

- (b) If any of the follow-up audiograms demonstrate an average loss of no more than 10 dB in 2000, 3000, and 4000 Hz in either ear, when compared to the revised reference audiogram, hearing may be considered stable. The reference audiogram (per Section 12-C-7-d (5) and (6)) remains the audiogram against which further testing is compared. The individual is returned to annual monitoring.
 - (c) If these reevaluation audiograms exhibit a loss greater than an average threshold of 10 dB in 2000, 3000, and 4000 Hz in either ear when compared to the revised reference audiogram, the individual must be referred to an otolaryngologist for a consultation. Final disposition will depend on the consultant's diagnosis and recommendations.
 - e. Specific written requirements. In addition to the general requirements specified in Section 12-B-4-b, the medical officer must do the following:
 - (1) The employee shall be notified in writing within 21 days, when an audiologist or a physician confirms a threshold shift is permanent. Such determination must be entered in the employee's medical record.
 - (2) Supervisors shall be notified, in writing, that the worker has experienced a decrease in hearing. Release of medical information must conform to privacy act requirements.
 - (3) Document that the patient was counseled concerning the potential seriousness of repeated unprotected exposures to excessive noise and provided additional information on hearing protection and avoidance of hazardous noise exposures.
8. Pesticides (Figure 12-C-7).
- a. Exposure effects. There are over 1,200 chemical compounds currently classified as pesticides. However, this surveillance protocol is primarily concerned with only two classes of pesticides: organophosphate and carbamate insecticides, and chlorophenoxyacetic acid herbicides. Organophosphates and carbamates are inhibitors of the enzyme acetylcholinesterase and they cause parasympathetic nervous system hyperactivity (miosis, urination, diarrhea, defecation, lacrimation, salivation), neuromuscular paralysis, CNS dysfunction (irritability, anxiety, impaired cognition, seizures, coma), peripheral neuropathy, and depression of RBC cholinesterase activity. Chlorophenoxyacetic acid herbicides cause skin, eye, and respiratory tract irritation, cough, nausea, vomiting, diarrhea, abdominal pain, and peripheral neuropathy. In the past, some chlorophenoxyacetic herbicides were contaminated with dioxins during manufacture.
 - b. Required surveillance. The Coast Guard MSALs for carbaryl, chlorpyrifos, malathion, parathion, 2,4, -D, and 2,4,5,-T are based on the ACGIH threshold limit values. Enrollment in the OMSEP is required for all personnel who are or may be exposed to **any** identified pesticide at or above the MSAL (as defined in Sect. 12-A-2) for 30 or more days per year.
 - c. Information to medical officer. The OMSEP coordinator must provide the examining medical officer with:

- (1) A description of the employee's duties as they relate to the employee's exposure.
- (2) The employee's exposure level or potential exposure level to any pesticides.
- (3) A description of any personal protective equipment used or to be used, including any respirators.

d. Examination protocols.

- (1) Biological monitoring or "RBC cholinesterase only" examinations must be provided at least **every six months** to each employee exposed to organophosphate or carbamate pesticides at or above the MSAL. If an employee's RBC cholinesterase activity is found on any testing to be less than 80% of the pre-exposure baseline, the frequency of biological monitoring will be increased to at least **every three months during the application season**. Non-seasonal, acute exposures will be monitored at a frequency determined by the supervising medical officer based on exposure information data.
- (2) Each routine (non-acute exposure) initial, periodic, and exit examination shall include, as a minimum:
 - (a) A detailed work history and a medical history, with particular attention to:
 - 1 past and current exposure to pesticides or other chemicals (occupational and non-occupational);
 - 2 smoking and alcohol use history;
 - 3 any symptoms of eye, nose, or throat irritation; cough; nausea, vomiting, diarrhea, or abdominal pain; irritability, anxiety, difficulty concentrating, impaired short-term memory, fatigue, or seizures; numbness, tingling, or weakness in the extremities; and
 - 4 allergic skin conditions or dermatitis.
 - (b) A complete physical examination, with attention to the skin, respiratory, and nervous systems, including a mental status examination, should be performed. Pulmonary status must be evaluated if respiratory protection is used. (See Section 12-C-9).
 - (c) The following routine laboratory tests:
 - 1 A CBC, a multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, and alkaline phosphatase), and a dipstick U/A;
 - 2 An erythrocyte (RBC) cholinesterase level.
 - 3 **Initial examination only—two RBC cholinesterase tests must be drawn at least 24 hrs. apart.** The results of these two tests will be averaged to provide the pre-exposure baseline for future reference, unless they differ by more than 15% from each other, in which case,

additional testing must be performed until successive tests do not differ by more than 15%. The pre-exposure baseline blood tests must be drawn after a period of at least 60 days without known exposure to organophosphates.

- (d) Any other tests or procedures deemed appropriate by the examining physician (e.g., cognitive function testing). Pulmonary function testing should be performed at least once every 4 years if the employee wears a respirator.
- (3) Each acute exposure examination shall include, as a minimum:
 - (a) A medical and work history with emphasis on any evidence of eye, nose, or throat irritation; cough; nausea, vomiting, diarrhea, or abdominal pain; irritability, anxiety, difficulty concentrating, impaired short-term memory, fatigue, or seizures; numbness, tingling, or weakness in the extremities.
 - (b) A complete physical examination with attention to any reported symptoms as well as the skin, respiratory, and nervous systems. A mental status examination must be performed.
 - (c) An erythrocyte (RBC) cholinesterase level.
 - (d) Any other tests or procedures deemed appropriate by the examining physician (e.g., CBC, CXR, cognitive function testing, urinary metabolites—if less than 24 hrs. post acute exposure). Pulmonary function testing should be performed at least every 4 years if the employee wears a respirator.
- e. Specific written requirements. In addition to the general requirements specified in Section 12-B-4, the physician should address:
 - (1) Any detected medical conditions, which would place the employee's health at increased risk from exposure to identified pesticides or from respiratory wear.
 - (2) Counseling on the possible increased risk of health impairment from working with certain pesticides, in the event that the employee was found to have skin disease, chronic lung disease, or abnormalities of the central or peripheral nervous system that could directly or indirectly be aggravated by such exposure.

9. Respirator Wear (Figure 12-C-8).

- a. Exposure effects. The OSHA medical surveillance protocol for respirator wear is a means to assess the effectiveness of respiratory protection among exposed workers. Periodic examinations are required to assess continued fitness for duties and to assess whether the present respiratory protection program provides adequate protection against illness. Respirators are often extremely uncomfortable to wear for long periods. Workers with asthma, claustrophobia, angina, and other conditions may not be able to wear respirators effectively. The worker should be questioned for a history or symptoms of past and current exposures to hazardous chemicals; fumes and dusts; smoking and alcohol use histories; wheezing or abnormal breath sounds; clubbing; and cardiac arrhythmia.

b. Required surveillance.

- (1) Initial Medical Determination. An initial/baseline examination will be performed at the time of assignment to a job requiring respirator wear. Before an employee may be issued a respirator or assigned to a task that may require a respirator, that worker must complete a mandatory OSHA Respirator Medical Evaluation Questionnaire. This questionnaire will be provided, at the local unit by the cognizant SEHO, to all workers expected to require the use of a respirator. This questionnaire serves as the initial medical examination. A health care professional (nurse, nurse practitioner, physician assistant, and physician) must review this questionnaire to determine if a follow-up medical examination is required. Independent duty technicians (IDT'S) are authorized to review the questionnaire but must refer any positive responses on questionnaire (or any other concerns) to the supervising medical officer for further review. Any employee who gives a positive response to any questions among questions 1-8 in section two of the questionnaire shall be subject to a follow-up medical examination. This examination will determine whether the worker is physically and mentally capable of performing the work and using a respirator [29 CFR 1910.134].
- (2) Additional Medical Evaluation and Medical Examination.
 - (a) Additional medical examinations maybe required to assess continued fitness for duties involving respirator wear. The following conditions will dictate the need for a follow-up evaluation:
 - 1 The member reports signs and symptoms related to the ability to use a respirator;
 - 2 The health care provider, supervisor, or respirator program coordinator informs the command of the need for evaluation;
 - 3 Observations are made during fit testing, respirator use, or program evaluation that indicate the need for evaluation;
 - 4 When changes in workplace conditions such as physical work effort, protective clothing or climate conditions result in substantial increase in physiological burden;
 - 5 A member's scheduled quintennial physical examination.
 - (b) Periodic physical examinations will be provided at least once every five years. The periodic physical examination requires a review and update of the respirator questionnaire. A health care provider must review the questionnaire to determine the need for a follow-up examination. A follow-up medical examination is required for anyone with positive responses to questions 1-8 in section two of the questionnaire.

c. Information to medical officer. The OMSEP coordinator must provide the examining medical officer with:

- (1) A description of the employee's duties as they relate to the employee's respirator wear.
 - (2) The employee's exposures or potential exposures to any hazardous chemicals or physical agents.
 - (3) A description of the respirator(s) used or to be used.
- d. Examination protocol. Each routine (non-acute exposure) initial and periodic examination shall include, as a minimum the completion of the mandatory OSHA Respirator Medical Evaluation Questionnaire.
- e. Specific written requirements. In addition to the general requirements specified in Section 12-B-4, the physician should address:
- (1) Any detected medical conditions that would place the employee at increased risk of material impairment of the employee's health from respirator use.
 - (2) Asthmatics with normal or mildly impaired lung function should be evaluated based on the job requirements, but disapproval should be strongly considered for asthmatics that require regular medications to maintain airflow, or who have a history of airway reactivity or sensitization to extrinsic materials (dusts, fumes, vapors, or cold).
 - (3) Note: There currently exists no consensus standard by which physicians may assess a worker's ability to wear a respirator. As a general rule, however, anyone with documented respiratory impairment of moderate to severe degree (FEV_1 or $FVC < 70\%$ of predicted) should not be routinely approved to wear a respirator.

10. Respiratory Sensitizers (Figure 12-C-9).

- a. Exposure effects. Respiratory sensitizers include numerous compounds which cause both occupational asthma and/or hypersensitivity pneumonitis (extrinsic allergic alveolitis). Respiratory sensitizers include vegetable dusts and woods, molds and spores, animal danders, metals (platinum, chromium, nickel, cobalt, vanadium), and chemicals (isocyanates, formaldehyde, trimellitic anhydride).
- b. Required surveillance. The Coast Guard MSALs for formaldehyde, toluene diisocyanate, and vanadium, are based on the ACGIH threshold limit values. Enrollment in the OMSEP is required for all personnel who are or may be exposed to **any** identified respiratory sensitizer at or above the MSAL (as defined in Sect. 12-A-2) for 30 or more days per year. In the Coast Guard, exposure to respiratory sensitizers is primarily associated with industrial operations, though some marine inspection activities may also lead to exposures.
- c. Information to medical officer. The OMSEP coordinator must provide the examining medical officer with:
 - (1) A description of the employee's duties as they relate to the employee's exposure.
 - (2) The employee's exposure level or anticipated exposure level to any respiratory sensitizers.

- (3) A description of any personal protective equipment used or to be used, including any respirators.
- d. Examination protocols.
 - (1) Each routine (non-acute exposure) initial, periodic, and exit examination shall include, as a minimum:
 - (a) A detailed work history and a medical history, with particular attention to:
 - 1 past and current exposure to respiratory sensitizers (occupational and non-occupational);
 - 2 smoking history;
 - 3 any symptoms of eye, nose, or throat irritation;
 - 4 chronic airway problems or hyperactive airway disease; and
 - 5 allergic skin conditions or dermatitis.
 - (b) In the event that the employee is not required to wear a respirator and the history and routine laboratory tests are unremarkable, the medical officer may determine that a complete physical examination is not required. Otherwise, at a minimum, a system specific physical examination with attention to the respiratory system must be completed. Pulmonary status must be evaluated if respiratory protection is used. (See Section 12-C-9).
 - (c) The following routine laboratory tests:
 - 1 a CBC, a multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, and alkaline phosphatase), and a dipstick U/A;
 - 2 PFTs (including FVC & FEV₁).
 - (d) Any other tests or procedures deemed appropriate by the examining physician (e.g., CXR, bronchial provocation tests).
 - (2) Each acute exposure examination shall include, as a minimum:
 - (a) A medical and work history with emphasis on any evidence of upper or lower respiratory problems, allergic conditions, skin reaction or hypersensitivity, and any evidence of eye, nose, or throat irritation.
 - (b) A directed physical examination with attention to the respiratory system.
 - (c) PFTs (including FVC & FEV₁).
 - (d) Any other tests or procedures deemed appropriate by the examining physician (e.g., CBC, CXR, bronchial provocation tests).

- e. Specific written requirements. In addition to the general requirements specified in Section 12-B-4-b, the physician should address:
 - (1) Any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from exposure to identified respiratory sensitizers, or from respirator use.
 - (2) The employee's ability to use respiratory and other personal protective equipment (see Section 12-C-9), and any limitations thereof.

11. Solvents (Figure 12-C-10).

- a. Exposure effects. There are over 30,000 industrial solvents. This protocol is designed to survey for the most frequent health effects of solvents when considered as an admittedly broad group. These effects are skin disorders (acute irritant dermatitis, chronic eczema), acute CNS effects (headache, nausea and vomiting, dizziness, light-headedness, vertigo, disequilibrium, fatigue, weakness, nervousness, irritability, depression, confusion, coma), and chronic CNS effects (chronic solvent intoxication, neurobehavioral abnormalities, cognitive dysfunction). Some other less frequent effects of solvents involve the hematopoietic, hepatic, peripheral nervous system, renal, reproductive, and respiratory systems. Most solvents are **not** carcinogenic to humans; benzene being a notable exception (see Section 12-C-3, above). In the Coast Guard, exposure to solvents is primarily associated with industrial and maintenance operations (e.g., painting).
- b. Required surveillance. The Coast Guard MSALs for ethylene glycol, methyl ethyl ketone, VM & P naphtha, and xylene are based on the ACGIH threshold limit values. Enrollment in the OMSEP is required for all personnel who are or may be exposed to **any** identified hazardous solvent at or above the MSAL (as defined in Section 12-A-2) for 30 or more days per year. An acute exposure examination is required in the event of any documented overexposure (above the TLV or STEL) to a solvent or any presumed overexposure where symptoms are present. In the case of an acute overexposure, an appropriate urine or blood specimen should be collected as soon as possible after the overexposure incident.
- c. Information to medical officer. The OMSEP coordinator must provide the examining medical officer with:
 - (1) A description of the employee's duties as they relate to the employee's exposure.
 - (2) The employee's exposure level or potential exposure level to any solvents.
 - (3) A description of any personal protective equipment used or to be used, including any respirators.
- d. Examination protocols.
 - (1) Each routine (non-acute exposure) initial, periodic, and exit examination shall include, as a minimum:
 - (a) A detailed work history and a medical history, with particular attention to:

- 1 past and current exposure to solvents (occupational and non-occupational);
 - 2 smoking history and alcohol use history;
 - 3 any symptoms of dry skin, skin irritation, or dermatitis;
 - 4 any CNS symptoms, including headache, nausea and vomiting, dizziness, light-headedness, vertigo, disequilibrium, fatigue, weakness, nervousness, irritability, depression, difficulty concentrating, mood changes, or confusion;
 - 5 a review of symptoms with attention to the hematopoietic, hepatic, peripheral nervous system, renal, reproductive, and respiratory systems.
- (b) A system specific physical examination, with attention to the skin and nervous systems, including a mental status examination, should be performed. Pulmonary status must be evaluated if respiratory protection is used. (See Section 12-C-9).
- (c) The following routine laboratory tests:
- 1 a CBC and differential, with platelet count, and RBC indices (MCV, MCH, MCHC); and
 - 2 a multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, and alkaline phosphatase) and a U/A with microscopic.
- (d) Consideration should be given to biological monitoring tests for ongoing overexposure to certain solvents, if specimens can be obtained in a timely manner during the exposure period. For non-acute exposures, a timely manner generally implies that the specimen be obtained at the end of a work shift or the end of a workweek.
- 1 For toluene, measure urinary hippuric acid, at the end of a full work shift.
 - 2 For xylene, measure urinary methyl-hippuric acid, at the end of a full work shift.
 - 3 For methylethylketone (MEK), measure urinary MEK, at the end of a full work shift.
 - 4 For trichloroethylene, measure urinary trichloroacetic acid, at the end of a full workweek.
- (e) Any other tests or procedures deemed appropriate by the examining physician (e.g., cognitive function tests. Note that skin (patch) testing is generally of little value in solvent-induced dermatitis, since the

pathophysiology is generally not allergic. Pulmonary function testing should be performed at least once every 4 years if the employee wears a respirator.

- (2) Each acute exposure examination shall include, as a minimum:
 - (a) A medical and work history with emphasis on any evidence of skin disorders or acute CNS effects (headache, nausea and vomiting, dizziness, light-headedness, vertigo, disequilibrium, fatigue, weakness, nervousness, irritability, depression, confusion, coma).
 - (b) A system specific physical examination with attention to the skin and nervous systems.
 - (c) If at all possible, a biological monitoring test for overexposure to the solvent in question should be performed, if such a test is available and a specimen can be obtained in a timely manner. For acute exposures, a timely manner implies within the first half-life of the chemical within the human body, generally a matter of a few hours after the overexposure.
 - (d) Any other tests or procedures deemed appropriate by the examining physician (e.g., CBC, CXR, and bronchial provocation tests).

e. Specific written requirements. In addition to the general requirements specified in Section 12-B-4-b, the physician should address:

- (1) Any detected medical conditions, which would place the employee at increased risk of material impairment of the employee's health from any identified exposures to solvents, or from respirator use.
- (2) The periodicity of the next routine medical surveillance examination. Examinations will be provided annually unless the physician recommends a longer interval.

12. Tuberculosis (Figure 12-C-11).

- a. Exposure effects. Tuberculous droplet nuclei are coughed, spoken, or sneezed into the air by an individual with active pulmonary tuberculosis. Exposure to these airborne droplet nuclei may cause infection with the bacterium that causes tuberculosis.
- b. Required surveillance. Employees who are occupationally exposed to active TB cases will be enrolled in the OMSEP and undergo annual screening for tuberculosis. See section 7-D-3 of this Manual, Tuberculosis Screening Program, for complete details. In the Coast Guard, medical personnel and personnel involved in alien migrant interdiction operations (AMIO) are at potential risk for exposure to active TB cases.
- c. Information to medical personnel. In order to assess whether the employee should remain under active surveillance for TB exposure, the OMSEP coordinator must provide the examining medical officer with the following information:
 - (1) A description of the employee's duties as they relate to the employee's exposure.
 - (2) The employee's exposure level or potential exposure level active TB cases.

- (3) A description of any personal protective equipment used or to be used.
- d. Examination protocols.
 - (1) Routine screening for exposed individuals is covered in section 7-D-3.
 - (a) Personnel with a history of non-reactive tuberculin skin tests will receive annual skin testing. Routine skin testing does not require an examination by a medical officer.
 - (b) Personnel with a history of reactive skin test(s) will be monitored for development of symptoms of active TB (cough, hemoptysis, fatigue, weight loss, night sweats) annually. A health services technician or a medical officer may complete such monitoring. Routine annual CXRs will not be done.
 - (2) Evaluation of personnel with newly reactive tuberculin skin tests or suspected active TB is covered in section 7-D-4. A medical officer shall perform a physical examination and obtain a complete medical history in such personnel. A CXR should be done.
- e. Specific written requirements. Requirements for recording routine skin test results are covered in Section 7-D-3-c. In addition, medical personnel should make a written recommendation as to whether continued annual TB surveillance is required.

13. Unspecified (Figure 12-C-12).

- a. Exposure effects. Individuals undergoing surveillance in this category have exposures to hazards, which are not included in any of the other protocols. Exposure effects will vary with the nature of the exposure, so there are no specific effects to describe.
- b. Required surveillance. Enrollment in the OMSEP is required whenever an employee is exposed to an identified hazard, at or above the MSAL, for 30 or more days per year.
- c. Information to medical officer. The OMSEP coordinator must provide the examining medical officer with:
 - (1) A description of the employee's duties as they relate to the employee's exposure.
 - (2) The employee's exposure level or anticipated exposure level to any hazardous chemicals or physical agents.
 - (3) A description of any personal protective equipment used or to be used.
- d. Examination protocols. Each routine initial, periodic, and exit examination shall include, as a minimum:
 - (1) A medical and work history. Ensure the patient is questioned about past exposure to chemical and physical hazards, smoking history and alcohol use, a complete review of systems.
 - (2) A complete physical examination of all systems, with attention to any organ systems with a significant history or current symptoms. Pulmonary status must be evaluated if respiratory protection is used. (See Section 12-C-9).

- (3) A CBC, a multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, and alkaline phosphatase), and a dipstick U/A.
 - (4) Any other tests or procedures deemed appropriate by the examining physician. Pulmonary function testing should be performed at least once every 4 years if the employee wears a respirator.
- e. Specific written requirements. In addition to the general requirements specified in Section 12-B-4-b, the physician should address:
 - (1) Any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from any identified exposures to identified hazards, or from respirator use.
 - (2) The periodicity of the next routine medical surveillance examination. Examinations will be provided annually unless the physician recommends a longer interval.

FIGURE 12-C-1

Date:	Unit:	OPFAC:	Unit POC:
Patient name:		SSN:	Unit Phone:
Exam type: <input type="checkbox"/> Initial/Baseline <input type="checkbox"/> Periodic <input type="checkbox"/> Exit/Separation <input type="checkbox"/> Other ____			
Acute Exposure <input type="checkbox"/>			

Examination Protocol for Exposure to **ASBESTOS**

IF EXAM TYPE IS	✓	DO or COMPLETE THESE ITEMS																
Initial/Baseline	<div><div></div><div></div></div>	CG-5447 History and Report of OMSEP Examination / DD-2808/DD-2807-1 DD Form 2493-1 or OSHA Respiratory Disease Questionnaire (Part 1) (optional)																
Periodic/Separation or Acute Exposure	<div><div></div><div></div></div>	DD Form 2493-2 or OSHA Respiratory Disease Questionnaire (Part 2) (optional) CG 5447 (update)																
All types	<div><div></div></div>	Complete blood count (CBC); multichemistry panel (includes liver function tests, BUN, creatinine); urinalysis with microscopic (U/A).																
All types	<div><div></div></div>	Pulmonary function tests (FVC & FEV ₁).																
Acute Exposure	<div><div></div></div>	<i>Acute Exposure Form</i>																
All types	<div><div></div></div>	Chest x-ray (PA) with “B-reader” or board certified radiologist evaluation at initial exam then per table:																
		<table><tr><td></td><td colspan="3"><i>Years since first exposure</i></td></tr><tr><td></td><td><i>Age 15-35</i></td><td><i>Age 36-45</i></td><td><i>Age ≥45</i></td></tr><tr><td>0-10</td><td>Every 5 years</td><td>Every 5 years</td><td>Every 5 years</td></tr><tr><td>Over 10</td><td>Every 5 years</td><td>Every 2 years</td><td>Every year</td></tr></table>		<i>Years since first exposure</i>				<i>Age 15-35</i>	<i>Age 36-45</i>	<i>Age ≥45</i>	0-10	Every 5 years	Every 5 years	Every 5 years	Over 10	Every 5 years	Every 2 years	Every year
	<i>Years since first exposure</i>																	
	<i>Age 15-35</i>	<i>Age 36-45</i>	<i>Age ≥45</i>															
0-10	Every 5 years	Every 5 years	Every 5 years															
Over 10	Every 5 years	Every 2 years	Every year															
All types	<div><div></div></div>	Physician’s notification regarding examination results. (Final action.)																

To the examining medical officer:

You must follow-up any significant abnormality through to a physical diagnosis. Provide ICD codes.

Ensure that the patient is questioned about the following history or symptoms: smoking history, dyspnea on exertion, cough, pleuritic pain, heartburn or epigastric pain. (See OSHA Respiratory Disease Questionnaire.)

Ensure that the patient is examined for the following possible signs: clubbing, basilar rales.

You must address the following four items in writing: 1) whether the employee has any detected medical conditions placing him/her at increased risk of health impairment from further asbestos exposure; 2) any recommended limitations on use of personal protective equipment; 3) that the employee has been informed by you of the results of the examination and any medical conditions resulting from asbestos exposure that require follow-up; 4) that the employee has been informed of the increased risk of lung cancer attributable to the synergistic effects of asbestos and smoking.

Asbestos exposure can cause asbestosis, bronchogenic carcinomas, mesothelioma, and gastric carcinoma. It may also be associated with multiple myeloma and renal carcinoma. Disease risk is dose dependent.

Asbestos was used in shipbuilding until the 1970s. Exposure among OMSEP participants is mostly associated with repair and overhaul of vessels built prior to that time

If the patient is on multiple monitoring protocols, ensure each unique item is completed. However, it is not necessary to duplicate tests and forms.

FIGURE 12-C-2

Date:	Unit:	OPFAC:	Unit POC:
Patient name:		SSN:	Unit Phone:
Exam type: <input type="checkbox"/> Initial/Baseline <input type="checkbox"/> Periodic <input type="checkbox"/> Exit/Separation <input type="checkbox"/> Acute exposure <input type="checkbox"/>			
Other _____			

Examination Protocol for Exposure to **BENZENE**

IF EXAM TYPE IS	✓	DO or COMPLETE THESE ITEMS
Initial/Baseline	_____	CG-5447 History and Report of OMSEP Examination. DD-2808/DD-2807-1
All types	_____	CBC and differential, with platelet count and RBC indices (MCV, MCH, MCHC).
Initial/Baseline, Periodic, or Separation	_____	Multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, GGT, LDH, and alkaline phosphatase) U/A with microscopic
Periodic /Separation/Acute Exposure	_____	CG 5447 (update)
Acute exposure	_____	Urinary phenol. (Only immediately after acute exposure) Blood or breath benzene level (optional-if available) Acute Exposure Form
All types	_____	Physician's notification regarding examination results. (Final action.)

To the examining medical officer:

- ◆ You must follow-up any significant abnormality through to a physical diagnosis. Provide ICD codes.
- ◆ Ensure that the patient is questioned about the following history or symptoms: smoking history, headache, difficulty concentrating, decreased attention span, short-term memory loss, mood lability, fatigue, dry skin, abnormal bleeding, anemia, weight loss.
- ◆ Ensure that the patient is examined for the following signs: mental status changes, dermatitis, pallor.
- ◆ Benzene exposure causes CNS depression, leukemia, aplastic anemia, and dermatitis.
- ◆ The employee should be medically removed from the workplace if any of the following are noted on the exam:
 - * The hemoglobin/hematocrit is below the laboratory's normal limit and/or these indices show a persistent downward trend from the individual's pre-exposure norms; provided these findings cannot be explained by other means.
 - * The thrombocyte (platelet) count has dropped more than 20% below the employee's most recent prior values or falls below the laboratory's normal limit.
 - * The leukocyte count is below 4,000 per mm³ or there is an abnormal differential count.
- ◆ Benzene is commonly associated with petrochemical manufacturing. Exposure among OMSEP participants is generally related to marine vessel inspection or disaster response (oil spill, fire). Commercial gasoline is about 3% benzene.
- ◆ If the patient is on multiple monitoring protocols, ensure each unique item is completed. However, it is not necessary to duplicate tests and forms.

FIGURE 12-C-3

Date:	Unit:	OPFAC:	Unit POC:
Patient name:		SSN:	Unit Phone:
Exam type: <input type="checkbox"/> Initial/Baseline <input type="checkbox"/> Periodic <input type="checkbox"/> Exit/Separation <input type="checkbox"/> Other _____			
Acute Exposure <input type="checkbox"/>			

Examination Protocol for Exposure to **CHROMATES**

IF EXAM TYPE IS	✓	DO or COMPLETE THESE ITEMS
Initial/Baseline	_____	CG-5447 History and Report of OMSEP Examination/ DD-2808/DD-2807-1
Initial/Baseline or Separation	_____	Chest x-ray (PA)
Periodic/Separation/ Acute Exposure	_____	CG 5447 (update)
All types	_____	Pulmonary function tests (FVC & FEV ₁).
All types	_____	Complete blood count (CBC)
All types	_____	Multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, and alkaline phosphatase)
All types	_____	U/A with microscopic
All types	_____	Physician's notification regarding examination results. (Final action.)

To the examining medical officer:

- ◆ You must follow-up any significant abnormality through to a physical diagnosis. Provide ICD codes.
- ◆ Ensure that the patient is questioned about the following history or symptoms: smoking history, shortness of breath, wheezing, cough, dry skin, skin ulcers.
- ◆ Ensure that the patient is examined for the following signs: erosion of nasal mucosa and septum, respiratory rhonchi, dermatitis, cutaneous ulcers.
- ◆ Make a recommendation as to when the next OMSEP examination for this employee should take place. The default interval is 1 year, but you may recommend a longer period of 18 or 24 months, if exposures are limited and there is no evidence of occupationally significant illness.
- ◆ Chromium exposure causes lung cancer, dermatitis, skin ulcers, and nasal septum perforation.
- ◆ Chromic acid may cause acute burns or irritation to skin, eyes, and upper respiratory tract. Inhalation may cause acute epiglottitis, laryngospasm, pneumonitis, and pulmonary edema.
- ◆ Some chromium compounds cause occupational asthma.
- ◆ Chromium compounds are commonly associated with steel and chemical manufacturing. Exposure among OMSEP participants is generally related to working with chromium containing paints.
- ◆ If the patient is on multiple monitoring protocols, ensure each unique item is completed. However, it is not necessary to duplicate tests and forms.

FIGURE 12-C-4

Date:	Unit:	OPFAC:	Unit POC:
Patient name:		SSN:	Unit Phone:
Exam type: <input type="checkbox"/> Initial/Baseline <input type="checkbox"/> Periodic <input type="checkbox"/> Exit/Separation <input type="checkbox"/> Acute exposure <input type="checkbox"/>			
Other _____			

Examination Protocol for Exposure to Hazardous Waste

IF EXAM TYPE IS	✓	DO or COMPLETE THESE ITEMS
Initial/Baseline	_____	CG-5447 History and Report of OMSEP Examination DD-2808/DD-2807-1
Initial/Baseline or Separation	_____	Chest x-ray (PA)
Periodic/Separation /Acute Exposure	_____	CG 5447 (update)
All types except acute exposure	_____	Vision screening (distant and near)
All types	_____	Pulmonary function tests (FVC & FEV ₁).
All types	_____	CBC and differential, with platelet count and RBC indices (MCV, MCH, MCHC).
All types	_____	Multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, and alkaline phosphatase)
All types	_____	U/A with microscopic
Acute exposure	_____	Blood lead and/or heavy metal screen, if indicated.
All types	_____	Physician's notification regarding examination results. (Final action.)

To the examining medical officer:

- ◆ You must follow-up any significant abnormality through to a physical diagnosis. Provide ICD codes.
- ◆ Ensure that the patient is questioned about the following history or symptoms: smoking history, weight loss, headache, visual disturbances, difficulty concentrating, decreased attention span, short-term memory loss, confusion, mood lability, fatigue, ataxia, peripheral numbness or paresthesias, weakness, shortness of breath, anemia.
- ◆ Ensure that the patient is examined for the following signs: gingivitis, sialorrhea, tremor, mental status changes, decreased deep tendon reflexes, decreased vibratory sensation, respiratory rhonchi and hyperresonance, dermatitis, edema.
- ◆ Make a recommendation as to when the next OMSEP examination for this employee should take place. The default interval is 1 year, but you may recommend a longer period of 18 or 24 months, if exposures are limited and there is no evidence of occupationally significant illness.
- ◆ The hazardous waste protocol involves medical surveillance for effects of exposure to a variety of heavy metals and chemical compounds. Neurotoxicity, pulmonary disease, dermatitis, and cancer are possible effects of excessive exposures to hazardous wastes.
- ◆ OMSEP participants monitored under this protocol are primarily members of HAZMAT and spill response teams, firefighters, and marine safety inspectors. Individual, specific exposure histories are often ill defined. If the patient is on multiple monitoring protocols, ensure each unique item is completed. However, it is not necessary to duplicate tests and forms.

FIGURE 12-C-5

Date:	Unit:	OPFAC:	Unit POC:
Patient name:		SSN:	Unit Phone:
Exam type: <input type="checkbox"/> Initial/Baseline <input type="checkbox"/> Periodic <input type="checkbox"/> Exit/Separation <input type="checkbox"/> Acute exposure <input type="checkbox"/>			
Other _____			

Examination Protocol for Exposure to

Lead

IF EXAM TYPE IS	✓	DO or COMPLETE THESE ITEMS
Initial/Baseline	_____	CG-5447 History and Report of OMSEP Examination DD-2808/DD-2807-1
All types	_____	Blood lead and zinc protoporphyrin (ZPP)
All types	_____	CBC and differential, with platelet count and RBC indices (MCV, MCH, MCHC), plus examination of peripheral smear morphology.
Periodic/Separation/Acute Exposure	_____	CG 5447 (update)
All types	_____	Multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, alkaline phosphatase, and uric acid)
Acute Exposure	_____	Acute Exposure Form
All types	_____	U/A with microscopic
All types	_____	Physician's notification regarding examination results. (Final action.)

To the examining medical officer:

- ◆ You must follow-up any significant abnormality through to a physical diagnosis. Provide ICD codes.
- ◆ Ensure that the patient is questioned about the following history or symptoms: past lead exposure, smoking history, abdominal pain and cramping, joint and extremity pain, difficulty concentrating, irritability, short-term memory loss, confusion, mood lability, fatigue, ataxia, peripheral numbness or paresthesias, weakness, anemia, and infertility.
- ◆ Ensure that the patient is examined for the following signs: hypertension, papilledema, gum "lead lines", pallor, mental status changes, decreased deep tendon reflexes, decreased vibratory sensation, extensor motor weakness.
- ◆ Lead exposure can cause fatigue, anemia, arthralgias and myalgias, peripheral motor neuropathy, neurobehavioral disturbances and encephalopathy, acute abdominal pain, gout and gouty nephropathy, acute and chronic renal failure, spontaneous abortions, and male infertility.
- ◆ If the blood lead level is greater than 40 µg/100 g of whole blood, the employee must be medically removed from any workplace exposure.
- ◆ If the patient is on multiple monitoring protocols, ensure each unique item is completed. However, it is not necessary to duplicate tests and forms.

FIGURE 12-C-6

Date:	Unit:	OPFAC:	Unit POC:
Patient name:		SSN:	Unit Phone:
Exam type: <input type="checkbox"/> Initial/Baseline <input type="checkbox"/> Periodic <input type="checkbox"/> Exit/Separation <input type="checkbox"/> Acute exposure <input type="checkbox"/>			
Other _____			
Examination Protocol for Exposure to Noise			
IF EXAM TYPE IS		✓ DO or COMPLETE THESE ITEMS	
Initial/Baseline		_____ CG-5447 History and Report of OMSEP Examination _____ DD-2808/DD-2807-1 _____ CG-5552 Audiology History Questionnaire _____ DD Form 2215 (optional) or equivalent locally reproduced version.	
Periodic, Separation, or Acute Exposure		_____ DD Form 2216 (optional) or equivalent locally reproduced version.	
All types		_____ Physician's notification regarding examination results. (Final action.)	

To the examining medical officer:

- ◆ You must follow-up any significant abnormality through to a physical diagnosis. Provide ICD codes.
- ◆ Review and initial the CG-5552 Audiology History Questionnaire and the audiogram results.
- ◆ A significant threshold shift (STS) exists if the average change in hearing from the reference audiogram at, 2000, 3000, and 4000 Hz is greater than or equal to ± 10 dB in either ear.
- ◆ Additionally, any change of ± 15 dB at 1000, 2000, 3000, or 4000 Hz in either ear constitutes an STS.
- ◆ Do not apply the National Institute for Occupational Safety and Health (NIOSH) age corrections when determining STS.
- ◆ Follow-up audiograms must be conducted when an individual's audiogram shows an STS relative to the current reference audiogram in either ear. When a positive STS (decrease in hearing threshold) is noted, two 14-hour noise-free follow-up tests must be administered to confirm that the decrease in hearing is permanent. When a negative STS (improvement in hearing) is noted, one 14-hour noise-free follow-up tests must be administered.
- ◆ Medical evaluation is required to validate the existence of a permanent noise-induced threshold shift and/or to determine if further medical referral is required. That evaluation must be performed by an audiologist, and otolaryngologist, or other knowledgeable physician.
- ◆ If, compared with the current reference audiogram, a loss of hearing of ≥ 35 dB in either ear at one or more of the speech frequencies (500, 1,000, 2000, or 3000 Hz) is noted, the employee must be medically removed from further workplace exposure.
- ◆ If the patient is on multiple monitoring protocols, ensure each unique item is completed. However, it is not necessary to duplicate tests and forms.

FIGURE 12-C-7

Date:	Unit:	OPFAC:	Unit POC:
Patient name:		SSN:	Unit Phone:
Exam type: <input type="checkbox"/> Initial/Baseline <input type="checkbox"/> Periodic <input type="checkbox"/> Exit/Separation <input type="checkbox"/> Acute exposure <input type="checkbox"/>			
Other _____			

Examination Protocol for Exposure to Pesticides

IF EXAM TYPE IS	✓	DO or COMPLETE THESE ITEMS
Initial/baseline	_____	CG-5447 History and Report of OMSEP Examination
	_____	DD-2808/DD-2807-1
	_____	Blood cholinesterase level, two specimens at least 24 hrs. apart
Periodic/ Separation or Acute Exposure	_____	Blood cholinesterase level, if current exposure involves organophosphate or carbamate pesticides
	_____	CG 5447 (update)
All types	_____	Pulmonary function tests (FVC & FEV ₁).
All types except acute exposure	_____	CBC and differential, with platelet count and RBC indices (MCV, MCH, MCHC)
All types except acute exposure	_____	Multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, alkaline phosphatase)
All types except acute exposure	_____	U/A with microscopic
Acute Exposure	_____	Acute Exposure Form
All types	_____	Physician's notification regarding examination results. (Final action.)

To the examining medical officer:

- ◆ You must follow-up any significant abnormality through to a physical diagnosis. Provide ICD codes.
- ◆ Ensure that the patient is questioned about the following history or symptoms: past and current exposures to pesticides, smoking and alcohol use history; eye, nose or throat irritation; cough; nausea, vomiting, diarrhea or abdominal pain; irritability, anxiety, difficulty concentrating, impaired short-term memory, fatigue, or seizures; numbness, tingling, or weakness in the extremities; allergic skin conditions or dermatitis.
- ◆ Ensure the patient is examined for the following possible signs: dermatitis, meiosis, rhinitis, mental status changes. Pulmonary system must be examined if respiratory protection is used.
- ◆ If the cholinesterase level is at or below 50% of the pre-exposure baseline, the employee must be medically removed from any further workplace exposure.
- ◆ Organophosphates and carbamates are inhibitors of the enzyme acetylcholinesterase. They cause parasympathetic nervous system hyperactivity, neuromuscular paralysis, CNS dysfunction, peripheral neuropathy, and depression of RBC cholinesterase activity. Chlorophenoxyacetic acid herbicides cause skin, eye, and respiratory tract irritation, cough, nausea, vomiting, diarrhea, abdominal pain, and peripheral neuropathy.
- ◆ If the patient is on multiple monitoring protocols, ensure each unique item is completed. However, it is not necessary to duplicate tests and forms.

FIGURE 12-C-8

Date:	Unit:	OPFAC:	Unit POC:
Patient name:		SSN:	Unit Phone:
Exam type: <input type="checkbox"/> Initial/Baseline <input type="checkbox"/> Periodic <input type="checkbox"/> Exit/Separation <input type="checkbox"/> Other			
<p style="text-align: center;">Examination Protocol for Exposure to Respirator Wear</p>			
IF EXAM TYPE IS	✓	DO or COMPLETE THESE ITEMS	
Initial/Baseline	_____	OSHA Respiratory Medical Evaluation Questionnaire	
Periodic/Exit/Separation	_____	OSHA Respiratory Medical Evaluation Questionnaire (update).	
All types	_____	Physician's notification regarding examination results. (Final action.)	

To the examining medical officer:

- ◆ You must follow-up any significant abnormality through to a physical diagnosis. Provide ICD codes.
- ◆ This protocol applies to all employees required to wear a respirator in the course of their work.
- ◆ Ensure that the patient is questioned about the following history or symptoms: past and current exposures to hazardous chemicals, fumes, and dusts; smoking and alcohol use history; any history of claustrophobia, asthma, angina, syncope, and other respiratory or cardiovascular disease.
- ◆ Ensure the patient is examined for the following possible signs: wheezing or other abnormal breath **sounds**, clubbing, and cardiac arrhythmias.
- ◆ You must address whether the employee has any detected medical conditions which would place him or her at increased risk of material health impairment from the required respirator use. Consider whether the employee's health will allow him or her to tolerate respirator wear.
 - * Note: There currently exists no consensus standard by which physicians may assess a worker's ability to wear a respirator. As a general rule, however, anyone with documented respiratory impairment of moderate to severe degree (FEV1 or FVC <70% of predicted) should not be routinely approved to wear a respirator. Asthmatics with normal or mildly impaired lung function should be evaluated based on the job requirements, but disapproval should be strongly considered for asthmatics that require regular medications to maintain airflow, or who have a history of airway reactivity or sensitization to extrinsic materials (dusts, fumes, vapors, or cold).
- ◆ If the patient is on multiple monitoring protocols, ensure each unique item is completed. However, it is not necessary to duplicate tests and forms.

FIGURE 12-C-9

Date:	Unit:	OPFAC:	Unit POC:
Patient name:		SSN:	Unit Phone:
Exam type: <input type="checkbox"/> Initial/Baseline <input type="checkbox"/> Periodic <input type="checkbox"/> Exit/Separation <input type="checkbox"/> Acute exposure <input type="checkbox"/>			
Other _____			

Examination Protocol for Exposure to Respiratory Sensitizers

IF EXAM TYPE IS	✓	DO or COMPLETE THESE ITEMS
Initial/Baseline	_____	CG-5447 History and Report of OMSEP Examination DD-2808/DD-2807-1
Periodic/Exit/Acute Exposure	_____	CG 5447 (update)
All types	_____	Pulmonary function tests (FVC & FEV ₁).
All types except acute exposure	_____	CBC (complete blood count)
All types except acute exposure	_____	Multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, alkaline phosphatase)
All types except acute exposure	_____	U/A (dipstick sufficient)
Acute Exposure	_____	Acute Exposure Form
All types	_____	Physician's notification regarding examination results. (Final action.)

To the examining medical officer:

- ◆ You must follow-up any significant abnormality through to a physical diagnosis. Provide ICD codes.
- ◆ Ensure that the patient is questioned about the following history or symptoms: past and current exposures to respiratory sensitizers, smoking history; eye, nose or throat irritation; cough; asthma or other chronic airway problems; allergic skin conditions or dermatitis.
- ◆ In the event that the employee is not required to wear a respirator, and the history and routine laboratory tests are unremarkable, the medical officer may determine that a complete physical examination is not required. Otherwise, at a minimum, a directed physical examination with attention to the respiratory system must be completed. Pulmonary status must be evaluated if respiratory protection is used.
- ◆ Respiratory sensitizers include numerous compounds which cause both occupational asthma and/or hypersensitivity pneumonitis (extrinsic allergic alveolitis). Respiratory sensitizers include vegetable dusts and woods, molds and spores, animal danders, metals (platinum, chromium, nickel, cobalt, vanadium), and chemicals (isocyanates, formaldehyde, trimellitic anhydride).
- ◆ In the Coast Guard, exposure to respiratory sensitizers is primarily associated with industrial operations, though some marine inspection activities may also lead to exposures.
- ◆ If the patient is on multiple monitoring protocols, ensure each unique item is completed. However, it is not necessary to duplicate tests and forms.

FIGURE 12-C-10

Date:	Unit:	OPFAC:	Unit POC:
Patient name:		SSN:	Unit Phone:
Exam type: <input type="checkbox"/> Initial/Baseline <input type="checkbox"/> Periodic <input type="checkbox"/> Exit/Separation <input type="checkbox"/> Acute exposure <input type="checkbox"/>			
Other _____			

Examination Protocol for Exposure to Solvents

IF EXAM TYPE IS	✓	DO or COMPLETE THESE ITEMS
Initial/Baseline	_____ _____	CG-5447 History and Report of OMSEP Examination DD-2808/DD-2807-1
All types	_____	Pulmonary function tests (FVC & FEV ₁).
All types except acute exposure	_____	CBC and differential, with platelet count and RBC indices (MCV, MCH, MCHC)
Periodic/Exit/Acute Exposure	_____	CG 5447 (update)
All types except acute exposure	_____	Multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, alkaline phosphatase)
All types except acute exposure	_____	U/A with microscopic
Acute exposure	_____	Acute Exposure Form
All types	_____	Physician's notification regarding examination results. (Final action.)

To the examining medical officer:

- ◆ You must follow-up any significant abnormality through to a physical diagnosis. Provide ICD codes.
- ◆ Ensure that the patient is questioned about the following history or symptoms: past and current exposures to solvents, smoking and alcohol use history; allergic skin conditions, dry skin, or dermatitis ; eye, nose or throat irritation; headache, nausea, vomiting, dizziness, vertigo; fatigue, weakness, irritability, depression, difficulty concentrating, or impaired short-term memory; and numbness, tingling, or weakness in the extremities.
- ◆ Ensure the patient is examined for the following possible signs: dermatitis, peripheral neuropathy, cognitive dysfunction, and mental status changes.
- ◆ If the particular solvent exposure is well characterized and specific laboratory tests are available, biological monitoring should be considered.
- ◆ Make a recommendation as to when the next OMSEP examination for this employee should take place. The default interval is 1 year, but you may recommend a longer period of 18 or 24 months, if exposures are limited and there is no evidence of occupationally significant illness.
- ◆ There are over 30,000 industrial solvents. This protocol is designed to survey for the most frequent health effects of solvents when taken as a broad group. These effects are skin disorders, and acute and chronic CNS effects. Some other less frequent effects of solvents involve the hematopoietic, hepatic, peripheral nervous system, renal, reproductive, and respiratory systems. Most solvents are **not** carcinogenic in humans; benzene being a notable exception.
- ◆ In the Coast Guard, exposure to solvents is primarily associated with industrial and maintenance operations (e.g., painting).
- ◆ If the patient is on multiple monitoring protocols, ensure each unique item is completed. However, it is not necessary to duplicate tests and forms.

FIGURE 12-C-11

Date:	Unit:	OPFAC:	Unit POC:
Patient name:		SSN:	Unit Phone:
Exam type: <input type="checkbox"/> Initial/Baseline <input type="checkbox"/> Periodic <input type="checkbox"/> Exit/Separation <input type="checkbox"/> Acute exposure <input type="checkbox"/>			
Other _____			
Examination Protocol for Exposure to Tuberculosis			
IF EXAM TYPE IS	✓	DO or COMPLETE THESE ITEMS	
Initial/Baseline	_____	CG-5447 History and report of OMSEP Examination	
	_____	DD-2808/DD-2807-1	
All types, no history of prior reactive skin test	_____	Mantoux tuberculin skin test (TST)	
	_____	Enter results on SF 601 and PHS 731	
All types, history of prior reactive skin test	_____	SF 600 entry	
Follow-up on newly reactive TST	_____	CG-5447 (update)	
	_____	CXR (only if TST is newly reactive)	
All types	_____	Physician's notification regarding examination results. (Final action.)	

To the examining medical officer:

- ◆ You must follow-up any significant abnormality through to a physical diagnosis. Provide ICD codes.
- ◆ For personnel with a prior history of a reactive TST, ensure the patient is questioned about the following symptoms of active TB: fever, night sweats, weight loss, cough, and hemoptysis. This questioning may be completed by a nurse or health services technician.
- ◆ See section 7-D of the Medical Manual for full information on the tuberculosis control program.
- ◆ Forward a copy of all test results to the unit OMSEP coordinator.
- ◆ If the patient is on multiple monitoring protocols, ensure each unique item is completed. However, it is not necessary to duplicate tests and forms.

FIGURE 12-C-12

Date:	Unit:	OPFAC:	Unit POC:
Patient name:		SSN:	Unit Phone:
Exam type: <input type="checkbox"/> Initial/Baseline <input type="checkbox"/> Periodic <input type="checkbox"/> Exit/Separation <input type="checkbox"/> Acute exposure <input type="checkbox"/>			
Other _____			

Examination Protocol for Exposure to
Unspecified

IF EXAM TYPE IS	✓	DO or COMPLETE THESE ITEMS
Initial/Baseline	_____	CG-5447 History and Report of OMSEP Examination DD-2808/DD-2807-1
All types	_____	CBC (complete blood count)
All types	_____	Multichemistry panel (includes glucose, BUN, creatinine, total protein, total bilirubin, AST, ALT, LDH, alkaline phosphatase)
Periodic/Exit/Acute Exposure	_____	CG 5447 (update)
All types	_____	U/A (dipstick)
Acute exposure	_____	Acute Exposure Form
All types	_____	Physician's notification regarding examination results. (Final action.)

To the examining medical officer:

- ◆ You must follow-up any significant abnormality through to a physical diagnosis. Provide ICD codes.
- ◆ Ensure that the patient is questioned about his or her general medical and work history, including: past and current exposure to chemical and physical hazards, smoking history and alcohol use, and a complete review of systems.
- ◆ Ensure the patient is receives a complete physical examination of all systems, with attention to any organ systems with a significant history or current systems.
- ◆ Make a recommendation as to when the next OMSEP examination for this employee should take place. The default interval is 1 year, but you may recommend a longer period of 18 or 24 months, if exposures are limited and there is no evidence of occupationally significant illness.
- ◆ Individuals under going surveillance in this protocol have exposures to hazards which are not included in any of the other protocols.
- ◆ If the patient is on multiple monitoring protocols, ensure each unique item is completed. However, it is not necessary to duplicate tests and forms.